

Pro Lys Glu Ala Val Pro Glu Glu Ala Arg Ser Asp Ile His Tyr Ser  
                   265                                  270                                  275  
 gtg cct gag ggc ccc aag cct gct gtc cct tct gct cgg aat gct cca 979  
 Val Pro Glu Gly Pro Lys Pro Ala Val Pro Ser Ala Arg Asn Ala Pro  
                   280                                  285                                  290  
 tac ttc ccc tgt gac aaa gcc agc aaa gaa gaa gag aga cct tct tcg 1027  
 Tyr Phe Pro Cys Asp Lys Ala Ser Lys Glu Glu Glu Arg Pro Ser Ser  
                   295                                  300                                  305  
 gag gat gag att gcc ctg cat ttc gag ccc ccc aat gca ccc ttg aac 1075  
 Glu Asp Glu Ile Ala Leu His Phe Glu Pro Pro Asn Ala Pro Leu Asn  
 310                                  315                                  320                                  325  
 cgg aag ggt ctg gtt agt ccc cag agt ccc cag aaa tcc gac tgc cag 1123  
 Arg Lys Gly Leu Val Ser Pro Gln Ser Pro Gln Lys Ser Asp Cys Gln  
                   330                                  335                                  340  
 ccc aac tca ccc aca gag tcc tgc agc agc aag aac gcc tgc atc ctt 1171  
 Pro Asn Ser Pro Thr Glu Ser Cys Ser Ser Lys Asn Ala Cys Ile Leu  
                   345                                  350                                  355  
 cag gcc tct ggc tct ccg cca gcc aag agc ccc act gac ccg aaa gcc 1219  
 Gln Ala Ser Gly Ser Pro Pro Ala Lys Ser Pro Thr Asp Pro Lys Ala  
                   360                                  365                                  370  
 tgc aac tgg aag aag tat aag ttc atc gtt ctc aac agc ctc aat cag 1267  
 Cys Asn Trp Lys Lys Tyr Lys Phe Ile Val Leu Asn Ser Leu Asn Gln  
                   375                                  380                                  385  
 aat gcc aaa ccc gag ggc tct gag cag gca gag ctg ggt cgc ctc tcc 1315  
 Asn Ala Lys Pro Glu Gly Ser Glu Gln Ala Glu Leu Gly Arg Leu Ser  
 390                                  395                                  400                                  405  
 cct cga gcc tac cct gca ccg ccc gct tgc cag ccg cct atg gag ccc 1363  
 Pro Arg Ala Tyr Pro Ala Pro Pro Ala Cys Gln Pro Pro Met Glu Pro  
                   410                                  415                                  420

gcg aac ctt gat ctc cag tcc ccg acc aag ctc agt gcc agt ggg gag 1411  
 Ala Asn Leu Asp Leu Gln Ser Pro Thr Lys Leu Ser Ala Ser Gly Glu  
 425 430 435  
 gac tct acc atc ccc caa gcc agc cgg ctc aat aat ctc gtg aac agg 1459  
 Asp Ser Thr Ile Pro Gln Ala Ser Arg Leu Asn Asn Leu Val Asn Arg  
 440 445 450  
 tcc ctg gga ggc tcc ccc cga agc agc agt gag agt cac tca cca ctc 1507  
 Ser Leu Gly Gly Ser Pro Arg Ser Ser Ser Glu Ser His Ser Pro Leu  
 455 460 465  
 tac atg cac ccc cca aag tgc aca tcc tgc ggc tct cag tcc cca cag 1555  
 Tyr Met His Pro Pro Lys Cys Thr Ser Cys Gly Ser Gln Ser Pro Gln  
 470 475 480 485  
 cat aca gag atg tgc ctc cat act gct ggg ccc acg ttc ccg gag gag 1603  
 His Thr Glu Met Cys Leu His Thr Ala Gly Pro Thr Phe Pro Glu Glu  
 490 495 500  
 atg ggg gaa acc cag tca gag tat tcg gat tct agc tgt gag aat ggg 1651  
 Met Gly Glu Thr Gln Ser Glu Tyr Ser Asp Ser Ser Cys Glu Asn Gly  
 505 510 515  
 acc ttc ttc tgc aac gaa tgt gac tgc cgt ttc tct gag gag gcc tcg 1699  
 Thr Phe Phe Cys Asn Glu Cys Asp Cys Arg Phe Ser Glu Glu Ala Ser  
 520 525 530  
 ctc aag agg cac acg ctg cag acg cac agt gac aaa cca tac aaa tgt 1747  
 Leu Lys Arg His Thr Leu Gln Thr His Ser Asp Lys Pro Tyr Lys Cys  
 535 540 545  
 gat cgc tgc cag gcc tcc ttc cgc tac aag ggc aac ctc gcc agc cac 1795  
 Asp Arg Cys Gln Ala Ser Phe Arg Tyr Lys Gly Asn Leu Ala Ser His  
 550 555 560 565  
 aag act gtc cac acg ggt gag aaa ccc tat cgc tgt aac att tgt gga 1843  
 Lys Thr Val His Thr Gly Glu Lys Pro Tyr Arg Cys Asn Ile Cys Gly



|  |      |     |     |
|--|------|-----|-----|
| 570  | 575  | 580 |     |
| gcg cag ttc aat cgg cca gcc aac ctg aag acc cac act cga att cac    | 1891 |     |     |
| Ala Gln Phe Asn Arg Pro Ala Asn Leu Lys Thr His Thr Arg Ile His    |      |     |     |
| 585  | 590  | 595 |     |
| tct gga gaa aag ccc tac aaa tgt gaa acc tgt ggg gcc agg ttt gtt    | 1939 |     |     |
| Ser Gly Glu Lys Pro Tyr Lys Cys Glu Thr Cys Gly Ala Arg Phe Val    |      |     |     |
| 600  | 605  | 610 |     |
| cag gtg gcc cac ctc cgt gcc cac gtg ctc atc cac act gga gag aag    | 1987 |     |     |
| Gln Val Ala His Leu Arg Ala His Val Leu Ile His Thr Gly Glu Lys    |      |     |     |
| 615  | 620  | 625 |     |
| ccg tac ccc tgt gaa atc tgt ggc act cgc ttc cgg cac ctt cag act    | 2035 |     |     |
| Pro Tyr Pro Cys Glu Ile Cys Gly Thr Arg Phe Arg His Leu Gln Thr    |      |     |     |
| 630  | 635  | 640 | 645 |
| ctg aag agc cat ctg cgc atc cac aca gga gag aaa cct tac cat tgt    | 2083 |     |     |
| Leu Lys Ser His Leu Arg Ile His Thr Gly Glu Lys Pro Tyr His Cys    |      |     |     |
| 650  | 655  | 660 |     |
| gag aag tgt aac ctg cac ttt cgt cac aaa agc caa ctg cga ctt cat    | 2131 |     |     |
| Glu Lys Cys Asn Leu His Phe Arg His Lys Ser Gln Leu Arg Leu His    |      |     |     |
| 665  | 670  | 675 |     |
| ttg cgc cag aag cac ggc gcc atc acc aac acc aag gtg caa tac cgc    | 2179 |     |     |
| Leu Arg Gln Lys His Gly Ala Ile Thr Asn Thr Lys Val Gln Tyr Arg    |      |     |     |
| 680  | 685  | 690 |     |
| gtg tcg gcc gct gac ctg cct ccg gag ctc ccc aaa gcc tgc tga        | 2224 |     |     |
| Val Ser Ala Ala Asp Leu Pro Pro Glu Leu Pro Lys Ala Cys            |      |     |     |
| 695  | 700  | 705 |     |
| atgaagcatg gagtggttcc cgccttttcc tctccagccc cttctcagaa tctaccctaaa | 2284 |     |     |
| ggatgctgta acactttata caaaggatcat cccatgatgt agtgcctctc tcatccacta | 2344 |     |     |
| gtgcaaatca tagttgggggt ggggggtggg                                  | 2373 |     |     |

&lt;210&gt; 814

&lt;211&gt; 707

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 814

Met Ala Ser Pro Ala Asp Ser Cys Ile Gln Phe Thr Arg His Ala Ser  
 1 5 10 15  
 Asp Val Leu Leu Asn Leu Asn Arg Leu Arg Ser Arg Asp Ile Leu Thr  
 20 25 30  
 Asp Val Val Ile Val Val Ser Arg Glu Gln Phe Arg Ala His Lys Thr  
 35 40 45  
 Val Leu Met Ala Cys Ser Gly Leu Phe Tyr Ser Ile Phe Thr Asp Gln  
 50 55 60  
 Leu Lys Cys Asn Leu Ser Val Ile Asn Leu Asp Pro Glu Ile Ser Pro  
 65 70 75 80  
 Glu Gly Phe Cys Ile Leu Leu Asp Phe Met Tyr Thr Ser Arg Leu Asn  
 85 90 95  
 Leu Arg Glu Gly Asn Ile Met Ala Val Met Thr Thr Ala Met Tyr Leu  
 100 105 110  
 Gln Met Glu His Val Val Asp Thr Cys Arg Lys Phe Ile Lys Ala Ser  
 115 120 125  
 Glu Ala Glu Met Ala Pro Ala Leu Lys Pro Pro Arg Glu Glu Phe Leu  
 130 135 140  
 Asn Ser Arg Met Leu Met Pro His Asp Ile Met Ala Tyr Arg Gly Arg  
 145 150 155 160  
 Glu Val Val Glu Asn Asn Met Pro Leu Arg Asn Thr Pro Gly Cys Glu  
 165 170 175  
 Ser Arg Ala Phe Ala Pro Pro Leu Tyr Ser Gly Leu Ser Thr Pro Pro

|   |     |     |
|---|-----|-----|
| 180   | 185 | 190 |
| Ala Ser Tyr Pro Met Tyr Ser His Leu Pro Leu Ser Thr Phe Leu Phe |     |     |
| 195   | 200 | 205 |
| Ser Asp Glu Glu Leu Arg Asp Ala Pro Arg Met Pro Val Ala Asn Pro |     |     |
| 210   | 215 | 220 |
| Phe Pro Lys Glu Arg Ala Leu Pro Cys Asp Ser Ala Arg Gln Val Pro |     |     |
| 225   | 230 | 235 |
| Asn Glu Tyr Ser Arg Pro Ala Met Glu Val Ser Pro Ser Leu Cys His |     |     |
| 245   | 250 | 255 |
| Ser Asn Ile Tyr Ser Pro Lys Glu Ala Val Pro Glu Glu Ala Arg Ser |     |     |
| 260   | 265 | 270 |
| Asp Ile His Tyr Ser Val Pro Glu Gly Pro Lys Pro Ala Val Pro Ser |     |     |
| 275   | 280 | 285 |
| Ala Arg Asn Ala Pro Tyr Phe Pro Cys Asp Lys Ala Ser Lys Glu Glu |     |     |
| 290   | 295 | 300 |
| Glu Arg Pro Ser Ser Glu Asp Glu Ile Ala Leu His Phe Glu Pro Pro |     |     |
| 305   | 310 | 315 |
| Asn Ala Pro Leu Asn Arg Lys Gly Leu Val Ser Pro Gln Ser Pro Gln |     |     |
| 325   | 330 | 335 |
| Lys Ser Asp Cys Gln Pro Asn Ser Pro Thr Glu Ser Cys Ser Ser Lys |     |     |
| 340   | 345 | 350 |
| Asn Ala Cys Ile Leu Gln Ala Ser Gly Ser Pro Pro Ala Lys Ser Pro |     |     |
| 355   | 360 | 365 |
| Thr Asp Pro Lys Ala Cys Asn Trp Lys Lys Tyr Lys Phe Ile Val Leu |     |     |
| 370   | 375 | 380 |
| Asn Ser Leu Asn Gln Asn Ala Lys Pro Glu Gly Ser Glu Gln Ala Glu |     |     |
| 385   | 390 | 395 |
| Leu Gly Arg Leu Ser Pro Arg Ala Tyr Pro Ala Pro Pro Ala Cys Gln |     |     |
| 405   | 410 | 415 |

Pro Pro Met Glu Pro Ala Asn Leu Asp Leu Gln Ser Pro Thr Lys Leu  
 420 425 430  
 Ser Ala Ser Gly Glu Asp Ser Thr Ile Pro Gln Ala Ser Arg Leu Asn  
 435 440 445  
 Asn Leu Val Asn Arg Ser Leu Gly Gly Ser Pro Arg Ser Ser Ser Glu  
 450 455 460  
 Ser His Ser Pro Leu Tyr Met His Pro Pro Lys Cys Thr Ser Cys Gly  
 465 470 475 480  
 Ser Gln Ser Pro Gln His Thr Glu Met Cys Leu His Thr Ala Gly Pro  
 485 490 495  
 Thr Phe Pro Glu Glu Met Gly Glu Thr Gln Ser Glu Tyr Ser Asp Ser  
 500 505 510  
 Ser Cys Glu Asn Gly Thr Phe Phe Cys Asn Glu Cys Asp Cys Arg Phe  
 515 520 525  
 Ser Glu Glu Ala Ser Leu Lys Arg His Thr Leu Gln Thr His Ser Asp  
 530 535 540  
 Lys Pro Tyr Lys Cys Asp Arg Cys Gln Ala Ser Phe Arg Tyr Lys Gly  
 545 550 555 560  
 Asn Leu Ala Ser His Lys Thr Val His Thr Gly Glu Lys Pro Tyr Arg  
 565 570 575  
 Cys Asn Ile Cys Gly Ala Gln Phe Asn Arg Pro Ala Asn Leu Lys Thr  
 580 585 590  
 His Thr Arg Ile His Ser Gly Glu Lys Pro Tyr Lys Cys Glu Thr Cys  
 595 600 605  
 Gly Ala Arg Phe Val Gln Val Ala His Leu Arg Ala His Val Leu Ile  
 610 615 620  
 His Thr Gly Glu Lys Pro Tyr Pro Cys Glu Ile Cys Gly Thr Arg Phe  
 625 630 635 640  
 Arg His Leu Gln Thr Leu Lys Ser His Leu Arg Ile His Thr Gly Glu

645                      650                      655  
 Lys Pro Tyr His Cys Glu Lys Cys Asn Leu His Phe Arg His Lys Ser  
 660                      665                      670  
 Gln Leu Arg Leu His Leu Arg Gln Lys His Gly Ala Ile Thr Asn Thr  
 675                      680                      685  
 Lys Val Gln Tyr Arg Val Ser Ala Ala Asp Leu Pro Pro Glu Leu Pro  
 690                      695                      700  
 Lys Ala Cys  
 705

<210> 815

<211> 494

<212> DNA

<213> Mus musculus

<400> 815

aactccttct acaccgaaa ggaatcctat gactatcagg cagcctgtgc ccctcagcct 60  
 cctgggaacc tgggtgctgc accccgggggt gtctttgtgc ccaccattgc agatttcctt 120  
 aacttggcct ggtggacctc tgcctgccgc tggctccttat tccagcagct actctatggt 180  
 ctcatctatc acagctgggt ccaggcagac ccggcagaag ctgagggcag ccccgagacg 240  
 cgcgagacag ctgcgtcatg aaacagaccc agtactactt cggctcgggtg aacgcatcct 300  
 ataatgccat cattgactgc ggaaactgca gcaggctgtt ccatgcgcag agactgacca 360  
 acaccaatct cctgttcgtg gtggccgaga agccgctgtg cagccagtgc gaggcggggc 420  
 ggctgctgca gaaggagaca cactcggacg gcccgagca gtgtgagctg gtgcagagac 480  
 cgagataccg aaga 494

<210> 816

<211> 2652

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (517).. (2151)

<400> 816

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ttccgccaac tgtatggctg tctgagggtg tggaacagaa ggagggtccat tcctgttggt 60
gacagcactg tggccccgtg cctaggatga gccaggatata aaagcttatg cactggactg 120
cgccatctct gcttggtatc tatcgtgttg cccaagtcaa cattcccacc cccaaagaat 180
ttcaagaaga caaacaagcc aagactatgt aagccatntc tctttgactc tgagaacaac 240
ctgggcctag aagatggtag aactatatcc cagcagcacg agtttgtgtg atgcactctc 300
atgaaaggaa agcaccagag tticagccat ggaattgaag atatggatgc attcgacttt 360
ctagaaatic acctttctag aaacctatag aggtccagga tcctctatag actttgactg 420
acagaagtna ccaaatggga actacttgaa cagaaattaa ttcccttccca tgnnaaaata 480
gatctaaagg agctgtgaaa tcagctgcaa ctgaaa atg tct gac agc ttg gat 534
                                     Met Ser Asp Ser Leu Asp
                                     1           5
aac gaa gaa aaa ccc cca gct ccc cca ctg agg atg aac agt aac aac 582
Asn Glu Glu Lys Pro Pro Ala Pro Pro Leu Arg Met Asn Ser Asn Asn
                10                15                20
cga gac tct tca gca ctc aac cac agc tcc aaa cca ctg ccc atg gcc 630
Arg Asp Ser Ser Ala Leu Asn His Ser Ser Lys Pro Leu Pro Met Ala
                25                30                35
ccg gaa gag aag aat aag aaa gcc agg ctt cgc tct atc ttc cca gga 678
Pro Glu Glu Lys Asn Lys Lys Ala Arg Leu Arg Ser Ile Phe Pro Gly
                40                45                50
gga ggg gat aaa acc aat aag aag aaa gag aaa gag cgc cca gag atc 726
Gly Gly Asp Lys Thr Asn Lys Lys Lys Glu Lys Glu Arg Pro Glu Ile

```

|   |      |     |     |  |
|---|------|-----|-----|--|
| 55  | 60   | 65  | 70  |  |
| tct ctt cct tca gac ttt gag cat acg att cat gtg ggt ttt gat gca | 774  |     |     |  |
| Ser Leu Pro Ser Asp Phe Glu His Thr Ile His Val Gly Phe Asp Ala |      |     |     |  |
| 75  | 80   | 85  |     |  |
| gtc acc ggg gaa ttc act gga att cct gag caa tgg gca cga cta ctc | 822  |     |     |  |
| Val Thr Gly Glu Phe Thr Gly Ile Pro Glu Gln Trp Ala Arg Leu Leu |      |     |     |  |
| 90  | 95   | 100 |     |  |
| caa acc tcc aac ata aca aag ctg gaa cag aag aag aac cca caa gct | 870  |     |     |  |
| Gln Thr Ser Asn Ile Thr Lys Leu Glu Gln Lys Lys Asn Pro Gln Ala |      |     |     |  |
| 105   | 110  | 115 |     |  |
| gtt ctt gat gtt ctc aag ttc tac gac tcc aaa gaa acg gtc aac aac | 918  |     |     |  |
| Val Leu Asp Val Leu Lys Phe Tyr Asp Ser Lys Glu Thr Val Asn Asn |      |     |     |  |
| 120   | 125  | 130 |     |  |
| cag aaa tat atg agc ttt acg tca gga gat aaa agt gcc cat gga tac | 966  |     |     |  |
| Gln Lys Tyr Met Ser Phe Thr Ser Gly Asp Lys Ser Ala His Gly Tyr |      |     |     |  |
| 135   | 140  | 145 | 150 |  |
| ata gca gca cat cag tcg aat acc aaa aca ggt tcg gaa cct cct ttg | 1014 |     |     |  |
| Ile Ala Ala His Gln Ser Asn Thr Lys Thr Gly Ser Glu Pro Pro Leu |      |     |     |  |
| 155   | 160  | 165 |     |  |
| gct cct cct gta tct gaa gaa gag gat gaa gaa gag gaa gag gaa gaa | 1062 |     |     |  |
| Ala Pro Pro Val Ser Glu Glu Glu Asp Glu Glu Glu Glu Glu Glu Glu |      |     |     |  |
| 170   | 175  | 180 |     |  |
| gat gac aat gaa cct ccg cct gtc att gca cca aga cca gag cat aca | 1110 |     |     |  |
| Asp Asp Asn Glu Pro Pro Pro Val Ile Ala Pro Arg Pro Glu His Thr |      |     |     |  |
| 185   | 190  | 195 |     |  |
| aaa tca atc tat act cgc tcc gtg gtt gag tca att gct tca cca gct | 1158 |     |     |  |
| Lys Ser Ile Tyr Thr Arg Ser Val Val Glu Ser Ile Ala Ser Pro Ala |      |     |     |  |
| 200   | 205  | 210 |     |  |
| gca cca aat aaa gaa gat atc cca cct tct gct gag aat gcc aat tcc | 1206 |     |     |  |

1964/2644



1965/2644

520                                      525                                      530  
 gca aag gaa gca att aag aac agt agc cgt tag aactgcaagc cttaccctc 2171  
 Ala Lys Glu Ala Ile Lys Asn Ser Ser Arg  
 535                                      540                                      545  
 ncggctccca ggatgagtaa gactgaaata aaactctgct gctgcaggat ccacagaaga 2231  
 agagacagtc aaatggagtg ggggcctctt aacttttaag tgaatagaaa cttcttataa 2291  
 acctttttcc tactccctca gattatgtaa ttatattgta agcctgaact gcagcccaca 2351  
 cagggcagca atgtcgaagt agccattaag tggccacttc caccgtgaag cgaaagagcc 2411  
 agtagtgaat cccctcatit tgtgcattta ctttgaagaa aaaaatttct caaagatgca 2471  
 cactccctct tcatagtgct gtgtttgttt ttaagttaga gagtagtccc tctttcattc 2531  
 gnacctcttt caaaatccct tacccaacgt gatgtttttt cacttgcatt gtcattagat 2591  
 gttcagaaaa ataaaagatg tcaaaatgtt tttttaaaaa agaaaaccna aaaaaaaaaa 2651  
 a  
 2652

<210> 817

<211> 544

<212> PRT

<213> Mus musculus

<400> 817

Met Ser Asp Ser Leu Asp Asn Glu Glu Lys Pro Pro Ala Pro Pro Leu  
 1                                      5                                      10                                      15  
 Arg Met Asn Ser Asn Asn Arg Asp Ser Ser Ala Leu Asn His Ser Ser  
 20                                      25                                      30  
 Lys Pro Leu Pro Met Ala Pro Glu Glu Lys Asn Lys Lys Ala Arg Leu  
 35                                      40                                      45  
 Arg Ser Ile Phe Pro Gly Gly Gly Asp Lys Thr Asn Lys Lys Lys Glu  
 50                                      55                                      60  
 Lys Glu Arg Pro Glu Ile Ser Leu Pro Ser Asp Phe Glu His Thr Ile

|   |     |     |     |
|---|-----|-----|-----|
| 65  | 70  | 75  | 80  |
| His Val Gly Phe Asp Ala Val Thr Gly Glu Phe Thr Gly Ile Pro Glu |     |     |     |
| 85  | 90  | 95  |     |
| Gln Trp Ala Arg Leu Leu Gln Thr Ser Asn Ile Thr Lys Leu Glu Gln |     |     |     |
| 100   | 105 | 110 |     |
| Lys Lys Asn Pro Gln Ala Val Leu Asp Val Leu Lys Phe Tyr Asp Ser |     |     |     |
| 115   | 120 | 125 |     |
| Lys Glu Thr Val Asn Asn Gln Lys Tyr Met Ser Phe Thr Ser Gly Asp |     |     |     |
| 130   | 135 | 140 |     |
| Lys Ser Ala His Gly Tyr Ile Ala Ala His Gln Ser Asn Thr Lys Thr |     |     |     |
| 145   | 150 | 155 | 160 |
| Gly Ser Glu Pro Pro Leu Ala Pro Pro Val Ser Glu Glu Glu Asp Glu |     |     |     |
| 165   | 170 | 175 |     |
| Glu Glu Glu Glu Glu Glu Asp Asp Asn Glu Pro Pro Pro Val Ile Ala |     |     |     |
| 180   | 185 | 190 |     |
| Pro Arg Pro Glu His Thr Lys Ser Ile Tyr Thr Arg Ser Val Val Glu |     |     |     |
| 195   | 200 | 205 |     |
| Ser Ile Ala Ser Pro Ala Ala Pro Asn Lys Glu Asp Ile Pro Pro Ser |     |     |     |
| 210   | 215 | 220 |     |
| Ala Glu Asn Ala Asn Ser Thr Thr Leu Tyr Arg Asn Thr Asp Arg Gln |     |     |     |
| 225   | 230 | 235 | 240 |
| Arg Lys Lys Ser Lys Met Thr Asp Glu Glu Ile Leu Glu Lys Leu Arg |     |     |     |
| 245   | 250 | 255 |     |
| Ser Ile Val Ser Val Gly Asp Pro Lys Lys Lys Tyr Thr Arg Leu Glu |     |     |     |
| 260   | 265 | 270 |     |
| Lys Ile Gly Gln Gly Ala Ser Gly Thr Val Tyr Thr Ala Leu Asp Ile |     |     |     |
| 275   | 280 | 285 |     |
| Ala Thr Gly Gln Glu Val Ala Ile Lys Gln Met Asn Leu Gln Gln Gln |     |     |     |
| 290   | 295 | 300 |     |

Pro Lys Lys Glu Leu Ile Ile Asn Glu Ile Leu Val Met Arg Glu Asn  
 305 310 315 320  
 Lys Asn Pro Asn Ile Val Asn Tyr Leu Asp Ser Tyr Leu Val Gly Asp  
 325 330 335  
 Glu Leu Trp Val Val Met Glu Tyr Leu Ala Gly Gly Ser Leu Thr Asp  
 340 345 350  
 Val Val Thr Glu Thr Cys Met Asp Val Gly Gln Ile Ala Ala Val Cys  
 355 360 365  
 Arg Glu Cys Leu Gln Ala Leu Asp Phe Leu His Ser Asn Gln Val Ile  
 370 375 380  
 His Arg Asp Ile Lys Ser Asp Asn Ile Leu Leu Gly Met Asp Gly Ser  
 385 390 395 400  
 Val Lys Leu Thr Asp Phe Gly Phe Cys Ala Gln Ile Thr Pro Glu Gln  
 405 410 415  
 Ser Lys Arg Ser Thr Met Val Gly Thr Pro Tyr Trp Met Ala Pro Glu  
 420 425 430  
 Val Val Thr Arg Lys Ala Tyr Gly Pro Lys Val Asp Ile Trp Ser Leu  
 435 440 445  
 Gly Ile Met Ala Ile Glu Met Val Glu Gly Glu Pro Pro Tyr Leu Asn  
 450 455 460  
 Glu Asn Pro Leu Arg Ala Leu Tyr Leu Ile Ala Thr Asn Gly Thr Pro  
 465 470 475 480  
 Glu Leu Gln Asn Pro Glu Arg Leu Ser Ala Val Phe His Asp Phe Leu  
 485 490 495  
 Asn Arg Cys Leu Glu Met Asp Val Asp Arg Arg Gly Ser Ala Lys Glu  
 500 505 510  
 Leu Leu Gln His Pro Phe Leu Lys Leu Ala Lys Pro Leu Ser Ser Leu  
 515 520 525  
 Thr Pro Leu Ile Ile Ala Ala Lys Glu Ala Ile Lys Asn Ser Ser Arg

530

535

540

&lt;210&gt; 818

&lt;211&gt; 2504

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (358).. (2040)

&lt;400&gt; 818

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tgtgagccca tgtgagtcca ggaggcctct gcgacttaag gcggcagctg tgggggcctg 60
gagccccgag agaccctggg ggacaattta gagcgcgccc ctiggaatgag gtcccgagc 120
gacgcccagg cccgccttac tcctcctcct gcttggccaa gctgcctcct atttgaaag 180
ttttgtgggt tttctttctc ttcctccaac tttgggggga ggcatctatc tcctcaagcg 240
ctacagcttg gggtgacctt ctgacttga ggccgggaac catggtgtgg ggcagccatc 300
gctgaagtca gcgaaacaga gcctggcctg aagcaggcga cgctggaggc cagagcc 357
atg gcc att gcc acg tcg gcc cag ctt gcc cgg gca ttg tat gac aac 405
Met Ala Ile Ala Thr Ser Ala Gln Leu Ala Arg Ala Leu Tyr Asp Asn
      1           5           10           15
act gct gag tcc ccc cag gaa ctg tcc ttc cgc cga ggg gat gtt cta 453
Thr Ala Glu Ser Pro Gln Glu Leu Ser Phe Arg Arg Gly Asp Val Leu
           20           25           30
cgg gta ctg cag agg gag ggt gct ggt gga ctt gat ggt tgg tgc ctc 501
Arg Val Leu Gln Arg Glu Gly Ala Gly Gly Leu Asp Gly Trp Cys Leu
           35           40           45
tgc tct ctg cat ggc cag cag ggt att gtc cct gct aac aga gtg aag 549
Cys Ser Leu His Gly Gln Gln Gly Ile Val Pro Ala Asn Arg Val Lys

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|   |     |     |      |
|---|-----|-----|------|
| 50  | 55  | 60  |      |
| ctc ctt cct gct ggc cca gca ccc aag cct agc ctc tgc cca gca tct |     |     | 597  |
| Leu Leu Pro Ala Gly Pro Ala Pro Lys Pro Ser Leu Cys Pro Ala Ser |     |     |      |
| 65  | 70  | 75  | 80   |
| ccc acc cag cct ggc tca tca tgt ccc acc cca gag cgt ggc tgt gag |     |     | 645  |
| Pro Thr Gln Pro Gly Ser Ser Cys Pro Thr Pro Glu Arg Gly Cys Glu |     |     |      |
|   | 85  | 90  | 95   |
| gag cag gag gtg tat gta ata cca cca cca gct cga ccc tgc tct gcc |     |     | 693  |
| Glu Gln Glu Val Tyr Val Ile Pro Pro Pro Ala Arg Pro Cys Ser Ala |     |     |      |
|   | 100 | 105 | 110  |
| tgc gga ctt cca gct aga tcc tgc tca ccc tct tct gac tcc atc tac |     |     | 741  |
| Ser Gly Leu Pro Ala Arg Ser Cys Ser Pro Ser Ser Asp Ser Ile Tyr |     |     |      |
|   | 115 | 120 | 125  |
| aag gtc ccc cga gtc aat ggg atg cag ctg act gcc tcc aga gac gtg |     |     | 789  |
| Lys Val Pro Arg Val Asn Gly Met Gln Leu Thr Ala Ser Arg Asp Val |     |     |      |
|   | 130 | 135 | 140  |
| gca gag gtc tat gat gtg cct ccc aac atc ctc cgg gct ccc tcc agc |     |     | 837  |
| Ala Glu Val Tyr Asp Val Pro Pro Asn Ile Leu Arg Ala Pro Ser Ser |     |     |      |
| 145   | 150 | 155 | 160  |
| tgt ccc tat gac tcc cca gcc tcc ttt tcc tgt cct gtg gcc cca gtt |     |     | 885  |
| Cys Pro Tyr Asp Ser Pro Ala Ser Phe Ser Cys Pro Val Ala Pro Val |     |     |      |
|   | 165 | 170 | 175  |
| gtc cca cag ccc ccc aga gag gat gaa gcg ccc tac gat gtg cct ctg |     |     | 933  |
| Val Pro Gln Pro Pro Arg Glu Asp Glu Ala Pro Tyr Asp Val Pro Leu |     |     |      |
|   | 180 | 185 | 190  |
| gcc tta aag cca cct gca gag ctg gag cgg gat ccg gag tgg gaa ggg |     |     | 981  |
| Ala Leu Lys Pro Pro Ala Glu Leu Glu Arg Asp Pro Glu Trp Glu Gly |     |     |      |
|   | 195 | 200 | 205  |
| ggc cgg gag cca ggg cct cct ctt tac gct gcc cct tcc aac ctg aaa |     |     | 1029 |

Gly Arg Glu Pro Gly Pro Pro Leu Tyr Ala Ala Pro Ser Asn Leu Lys  
 210 215 220  
 cgg gcc tcg gct ctg ctc aac ctg tac gaa gca ccc gag gaa ctc ctg 1077  
 Arg Ala Ser Ala Leu Leu Asn Leu Tyr Glu Ala Pro Glu Glu Leu Leu  
 225 230 235 240  
 gca aat gga gaa agc agg gat gca gat gaa ggc att tac gat gtg cct 1125  
 Ala Asn Gly Glu Ser Arg Asp Ala Asp Glu Gly Ile Tyr Asp Val Pro  
 245 250 255  
 ctg ctg ggg cca gag cca ccg tcc cca gag cct cca gtg gct tct tcc 1173  
 Leu Leu Gly Pro Glu Pro Pro Ser Pro Glu Pro Pro Val Ala Ser Ser  
 260 265 270  
 tcc act gac ctg gac act gtg gcc cag ctt ccg acc aga agc tcc cca 1221  
 Ser Thr Asp Leu Asp Thr Val Ala Gln Leu Pro Thr Arg Ser Ser Pro  
 275 280 285  
 ccc caa cac agg ccc agg cta cca tcc act gag agc ctg tcc cgc cgc 1269  
 Pro Gln His Arg Pro Arg Leu Pro Ser Thr Glu Ser Leu Ser Arg Arg  
 290 295 300  
 cct ctg cct gcc ctc cct gtc tct gag gct cct gct cct tct cca gct 1317  
 Pro Leu Pro Ala Leu Pro Val Ser Glu Ala Pro Ala Pro Ser Pro Ala  
 305 310 315 320  
 cct tct cct gcc cca ggc cga aaa ggc agt atc cag gac agg cct cta 1365  
 Pro Ser Pro Ala Pro Gly Arg Lys Gly Ser Ile Gln Asp Arg Pro Leu  
 325 330 335  
 ccc cct ccc cca ccc tgc ctg cct ggt tat ggg ggc ctc aaa ccc gag 1413  
 Pro Pro Pro Pro Pro Cys Leu Pro Gly Tyr Gly Gly Leu Lys Pro Glu  
 340 345 350  
 gga gat cca gag tgc agg gag gta gcc aat gat cca gca ggc cct cac 1461  
 Gly Asp Pro Glu Cys Arg Glu Val Ala Asn Asp Pro Ala Gly Pro His  
 355 360 365

|   |      |
|---|------|
| aat gaa tat gaa ggc atc cca atg gcc gag gaa tat gac tac gtg cat | 1509 |
| Asn Glu Tyr Glu Gly Ile Pro Met Ala Glu Glu Tyr Asp Tyr Val His |      |
| 370 375 380   |      |
| ctg aag ggt gtg gat aca gct cag ggt tct aga ccc ctg gat aaa gct | 1557 |
| Leu Lys Gly Val Asp Thr Ala Gln Gly Ser Arg Pro Leu Asp Lys Ala |      |
| 385 390 395 400   |      |
| ttc cca gtg gat cct gaa ttg ctg gag agg gga ctg gcg gaa cgg aag | 1605 |
| Phe Pro Val Asp Pro Glu Leu Leu Glu Arg Gly Leu Ala Glu Arg Lys |      |
| 405 410 415   |      |
| gaa gct ctg tcc cca gag gag cca ctg gtc ctg tcc act gga gac ctc | 1653 |
| Glu Ala Leu Ser Pro Glu Glu Pro Leu Val Leu Ser Thr Gly Asp Leu |      |
| 420 425 430   |      |
| caa ctt ctg cac ttc tat gca ggg cag tgc cag agc cat tac tca gct | 1701 |
| Gln Leu Leu His Phe Tyr Ala Gly Gln Cys Gln Ser His Tyr Ser Ala |      |
| 435 440 445   |      |
| ctg caa gct gcc gtg gca gct ctc gtg gcc agc acc cag gcc aac cag | 1749 |
| Leu Gln Ala Ala Val Ala Ala Leu Val Ala Ser Thr Gln Ala Asn Gln |      |
| 450 455 460   |      |
| cca cca tgt ctc ttt gtg ccc cac ggc aaa aga gtg gtg gtg gct gct | 1797 |
| Pro Pro Cys Leu Phe Val Pro His Gly Lys Arg Val Val Val Ala Ala |      |
| 465 470 475 480   |      |
| cac cgc ctg gtg ttt gtt gga gac acc cta ggc cgg ctg gca gcc tct | 1845 |
| His Arg Leu Val Phe Val Gly Asp Thr Leu Gly Arg Leu Ala Ala Ser |      |
| 485 490 495   |      |
| gca gct ctc aga gca cag gtg ggg gct gca ggc aca atg ctg gcc caa | 1893 |
| Ala Ala Leu Arg Ala Gln Val Gly Ala Ala Gly Thr Met Leu Ala Gln |      |
| 500 505 510   |      |
| act ctg cgg gcc act gtg ctt gct gtc aag ggg gct gcc tta ggc tac | 1941 |
| Thr Leu Arg Ala Thr Val Leu Ala Val Lys Gly Ala Ala Leu Gly Tyr |      |



515                      520                      525  
 cca tct gac act gca gtc caa gag atg gcg cga tgc gtg gca gag ctt 1989  
 Pro Ser Asp Thr Ala Val Gln Glu Met Ala Arg Cys Val Ala Glu Leu  
 530                      535                      540  
 gca ggg cag gcc cta cgc ttt acc acc cta ctc gct ggt ctg ctc ccc 2037  
 Ala Gly Gln Ala Leu Arg Phe Thr Thr Leu Leu Ala Gly Leu Leu Pro  
 545                      550                      555                      560  
 tga gggcctgttc gtccagcctt cccctccctt gcctaccaga gccctgcgct 2090

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 aatatitctt gctttgtcca ggcaggcatc aggccatctg gggtaggag ggactggatt 2270  
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<211> 560

<212> PRT

<213> Mus musculus

<400> 819

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 20                      25                      30  
 Arg Val Leu Gln Arg Glu Gly Ala Gly Gly Leu Asp Gly Trp Cys Leu  
 35                      40                      45

Cys Ser Leu His Gly Gln Gln Gly Ile Val Pro Ala Asn Arg Val Lys  
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 Leu Leu Pro Ala Gly Pro Ala Pro Lys Pro Ser Leu Cys Pro Ala Ser  
 65 70 75 80  
 Pro Thr Gln Pro Gly Ser Ser Cys Pro Thr Pro Glu Arg Gly Cys Glu  
 85 90 95  
 Glu Gln Glu Val Tyr Val Ile Pro Pro Pro Ala Arg Pro Cys Ser Ala  
 100 105 110  
 Ser Gly Leu Pro Ala Arg Ser Cys Ser Pro Ser Ser Asp Ser Ile Tyr  
 115 120 125  
 Lys Val Pro Arg Val Asn Gly Met Gln Leu Thr Ala Ser Arg Asp Val  
 130 135 140  
 Ala Glu Val Tyr Asp Val Pro Pro Asn Ile Leu Arg Ala Pro Ser Ser  
 145 150 155 160  
 Cys Pro Tyr Asp Ser Pro Ala Ser Phe Ser Cys Pro Val Ala Pro Val  
 165 170 175  
 Val Pro Gln Pro Pro Arg Glu Asp Glu Ala Pro Tyr Asp Val Pro Leu  
 180 185 190  
 Ala Leu Lys Pro Pro Ala Glu Leu Glu Arg Asp Pro Glu Trp Glu Gly  
 195 200 205  
 Gly Arg Glu Pro Gly Pro Pro Leu Tyr Ala Ala Pro Ser Asn Leu Lys  
 210 215 220  
 Arg Ala Ser Ala Leu Leu Asn Leu Tyr Glu Ala Pro Glu Glu Leu Leu  
 225 230 235 240  
 Ala Asn Gly Glu Ser Arg Asp Ala Asp Glu Gly Ile Tyr Asp Val Pro  
 245 250 255  
 Leu Leu Gly Pro Glu Pro Pro Ser Pro Glu Pro Pro Val Ala Ser Ser  
 260 265 270  
 Ser Thr Asp Leu Asp Thr Val Ala Gln Leu Pro Thr Arg Ser Ser Pro

|   |   |     |
|---|---|-----|
| 275   | 280   | 285 |
| Pro Gln His Arg   | Pro Arg Leu Pro Ser Thr Glu Ser Leu Ser Arg Arg |     |
| 290   | 295   | 300 |
| Pro Leu Pro Ala Leu Pro Val Ser Glu Ala Pro Ala Pro Ser Pro Ala |   |     |
| 305   | 310   | 315 |
| Pro Ser Pro Ala Pro Gly Arg Lys Gly Ser Ile Gln Asp Arg Pro Leu |   |     |
|   | 325   | 330 |
|   |   | 335 |
| Pro Pro Pro Pro Pro Cys Leu Pro Gly Tyr Gly Gly Leu Lys Pro Glu |   |     |
|   | 340   | 345 |
|   |   | 350 |
| Gly Asp Pro Glu Cys Arg Glu Val Ala Asn Asp Pro Ala Gly Pro His |   |     |
|   | 355   | 360 |
|   |   | 365 |
| Asn Glu Tyr Glu Gly Ile Pro Met Ala Glu Glu Tyr Asp Tyr Val His |   |     |
|   | 370   | 375 |
|   |   | 380 |
| Leu Lys Gly Val Asp Thr Ala Gln Gly Ser Arg Pro Leu Asp Lys Ala |   |     |
| 385   | 390   | 395 |
|   |   | 400 |
| Phe Pro Val Asp Pro Glu Leu Leu Glu Arg Gly Leu Ala Glu Arg Lys |   |     |
|   | 405   | 410 |
|   |   | 415 |
| Glu Ala Leu Ser Pro Glu Glu Pro Leu Val Leu Ser Thr Gly Asp Leu |   |     |
|   | 420   | 425 |
|   |   | 430 |
| Gln Leu Leu His Phe Tyr Ala Gly Gln Cys Gln Ser His Tyr Ser Ala |   |     |
|   | 435   | 440 |
|   |   | 445 |
| Leu Gln Ala Ala Val Ala Ala Leu Val Ala Ser Thr Gln Ala Asn Gln |   |     |
|   | 450   | 455 |
|   |   | 460 |
| Pro Pro Cys Leu Phe Val Pro His Gly Lys Arg Val Val Val Ala Ala |   |     |
| 465   | 470   | 475 |
|   |   | 480 |
| His Arg Leu Val Phe Val Gly Asp Thr Leu Gly Arg Leu Ala Ala Ser |   |     |
|   | 485   | 490 |
|   |   | 495 |
| Ala Ala Leu Arg Ala Gln Val Gly Ala Ala Gly Thr Met Leu Ala Gln |   |     |
|   | 500   | 505 |
|   |   | 510 |

Thr Leu Arg Ala Thr Val Leu Ala Val Lys Gly Ala Ala Leu Gly Tyr  
 515 520 525  
 Pro Ser Asp Thr Ala Val Gln Glu Met Ala Arg Cys Val Ala Glu Leu  
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 Ala Gly Gln Ala Leu Arg Phe Thr Thr Leu Leu Ala Gly Leu Leu Pro  
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<210> 820

<211> 2348

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (550).. (1710)

<400> 820

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 gagacccctc tacaagcgat acttagtcct tctccactgt ttgcctccag ggaacctgag 240  
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 gaggagccca cggaactggc tagccaaagg agacaagcct atagtctcca tgatcctccc 480  
 gtccctgtgt ctttccttgg tccgctccat gttcaagagc tgcgctccgc agccaggacg 540  
 aggagagct atg gag gag cag ggt att cag tgc gcc ccg ccg cct ccc gcc 591

Met Glu Glu Gln Gly Ile Gln Cys Ala Pro Pro Pro Pro Ala

1

5

10

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gcc tcc cag aca ggg gta cct ctc acc aac ctc tcc eac aac tgc agc 639
Ala Ser Gln Thr Gly Val Pro Leu Thr Asn Leu Ser His Asn Cys Ser
15 20 25 30
gcc gac ggc tac att tac cag gac tcc atc gcc ctg ccc tgg aaa gtc 687
Ala Asp Gly Tyr Ile Tyr Gln Asp Ser Ile Ala Leu Pro Trp Lys Val
35 40 45
ctg ctg gtt gct ttg ttg gcg ctc atc acc ttg gcc acc acg ctc tcc 735
Leu Leu Val Ala Leu Leu Ala Leu Ile Thr Leu Ala Thr Thr Leu Ser
50 55 60
aac gcc ttt gta atc gct acg gtg tat cgg acc cgg aag cta cac acc 783
Asn Ala Phe Val Ile Ala Thr Val Tyr Arg Thr Arg Lys Leu His Thr
65 70 75
ccg gct aac tac ctg atc gcc tct ctg gca gtc act gac ctg ctc gtg 831
Pro Ala Asn Tyr Leu Ile Ala Ser Leu Ala Val Thr Asp Leu Leu Val
80 85 90
tcc atc ctg gtg atg ccc atc agc acc atg tac acg gtc act gga cgc 879
Ser Ile Leu Val Met Pro Ile Ser Thr Met Tyr Thr Val Thr Gly Arg
95 100 105 110
tgg aca cta ggc cag gtg gtc tgc gac ttc tgg ctg tcg tcg gat atc 927
Trp Thr Leu Gly Gln Val Val Cys Asp Phe Trp Leu Ser Ser Asp Ile
115 120 125
acc tgt tgc act gct tcc atc atg cat ctc tgt gtc atc gcc ctg gac 975
Thr Cys Cys Thr Ala Ser Ile Met His Leu Cys Val Ile Ala Leu Asp
130 135 140
cgc tac tgg gcc atc acc gat gcg gtg gag tat tct gct aaa agg act 1023
Arg Tyr Trp Ala Ile Thr Asp Ala Val Glu Tyr Ser Ala Lys Arg Thr
145 150 155
ccc aaa agg gcg gcc atc atg atc gtg ctg gtg tgg gtc ttc tcc atc 1071
Pro Lys Arg Ala Ala Ile Met Ile Val Leu Val Trp Val Phe Ser Ile

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|   |     |     |      |
|---|-----|-----|------|
| 160   | 165 | 170 |      |
| tct att tcg ttg cca ccc ttc ttc tgg cgt caa gcc aaa gca gag gag |     |     | 1119 |
| Ser Ile Ser Leu Pro Pro Phe Phe Trp Arg Gln Ala Lys Ala Glu Glu |     |     |      |
| 175   | 180 | 185 | 190  |
| gag atg ctg gac tgc ttt gtg aac acc gac cac gtc ctc tac acg gtc |     |     | 1167 |
| Glu Met Leu Asp Cys Phe Val Asn Thr Asp His Val Leu Tyr Thr Val |     |     |      |
| 195   | 200 | 205 |      |
| tac tcc acg gtg ggc gct ttc tat tta ccc acc ctg ctc ctc atc gcc |     |     | 1215 |
| Tyr Ser Thr Val Gly Ala Phe Tyr Leu Pro Thr Leu Leu Leu Ile Ala |     |     |      |
| 210   | 215 | 220 |      |
| ctc tat ggc cgc atc tat gtg gaa gcc cgc tct cgg att ttg aaa cag |     |     | 1263 |
| Leu Tyr Gly Arg Ile Tyr Val Glu Ala Arg Ser Arg Ile Leu Lys Gln |     |     |      |
| 225   | 230 | 235 |      |
| aca ccc aac aag acc ggc aag cgc ttg acc cga gcc cag ttg ata aca |     |     | 1311 |
| Thr Pro Asn Lys Thr Gly Lys Arg Leu Thr Arg Ala Gln Leu Ile Thr |     |     |      |
| 240   | 245 | 250 |      |
| gac tcc ccg gga tcc aca tcc tcg gtc acc tcc att aac tcc cgg gct |     |     | 1359 |
| Asp Ser Pro Gly Ser Thr Ser Ser Val Thr Ser Ile Asn Ser Arg Ala |     |     |      |
| 255   | 260 | 265 | 270  |
| ccg gac gtg ccc agt gag tcc ggg tct cct gtg tac gtg aac caa gtc |     |     | 1407 |
| Pro Asp Val Pro Ser Glu Ser Gly Ser Pro Val Tyr Val Asn Gln Val |     |     |      |
| 275   | 280 | 285 |      |
| aaa gtg cga gtc tca gac gcc ctg ctg gaa aag aag aaa ctc atg gcc |     |     | 1455 |
| Lys Val Arg Val Ser Asp Ala Leu Leu Glu Lys Lys Lys Leu Met Ala |     |     |      |
| 290   | 295 | 300 |      |
| gct agg gag cgc aaa gcc acc aag acc cta ggg atc att tta gga gca |     |     | 1503 |
| Ala Arg Glu Arg Lys Ala Thr Lys Thr Leu Gly Ile Ile Leu Gly Ala |     |     |      |
| 305   | 310 | 315 |      |
| ttt att gtg tgt tgg ctg ccc ttc ttc atc atc tcc ctg gtg atg cct |     |     | 1551 |

Phe Ile Val Cys Trp Leu Pro Phe Phe Ile Ile Ser Leu Val Met Pro  
 320 325 330  
 atc tgt aag gat gcc tgc tgg ttt cac atg gcc att ttt gac ttc ttc 1599  
 Ile Cys Lys Asp Ala Cys Trp Phe His Met Ala Ile Phe Asp Phe Phe  
 335 340 345 350  
 aat tgg tta ggc tat ctt aac tcc ctc atc aac ccc atc atc tac acc 1647  
 Asn Trp Leu Gly Tyr Leu Asn Ser Leu Ile Asn Pro Ile Ile Tyr Thr  
 355 360 365  
 atg tcc aat gag gac ttc aaa caa gcg ttc cac aaa ctg ata cgc ttt 1695  
 Met Ser Asn Glu Asp Phe Lys Gln Ala Phe His Lys Leu Ile Arg Phe  
 370 375 380  
 aag tgc gca ggt tga cttgtcaatg gcagtggggt cgcctaagcg acctttgggg 1750  
 Lys Cys Ala Gly  
 385  
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<210> 821

<211> 386

<212> PRT

<213> Mus musculus

&lt;400&gt; 821

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 20 25 30  
 Gly Tyr Ile Tyr Gln Asp Ser Ile Ala Leu Pro Trp Lys Val Leu Leu  
 35 40 45  
 Val Ala Leu Leu Ala Leu Ile Thr Leu Ala Thr Thr Leu Ser Asn Ala  
 50 55 60  
 Phe Val Ile Ala Thr Val Tyr Arg Thr Arg Lys Leu His Thr Pro Ala  
 65 70 75 80  
 Asn Tyr Leu Ile Ala Ser Leu Ala Val Thr Asp Leu Leu Val Ser Ile  
 85 90 95  
 Leu Val Met Pro Ile Ser Thr Met Tyr Thr Val Thr Gly Arg Trp Thr  
 100 105 110  
 Leu Gly Gln Val Val Cys Asp Phe Trp Leu Ser Ser Asp Ile Thr Cys  
 115 120 125  
 Cys Thr Ala Ser Ile Met His Leu Cys Val Ile Ala Leu Asp Arg Tyr  
 130 135 140  
 Trp Ala Ile Thr Asp Ala Val Glu Tyr Ser Ala Lys Arg Thr Pro Lys  
 145 150 155 160  
 Arg Ala Ala Ile Met Ile Val Leu Val Trp Val Phe Ser Ile Ser Ile  
 165 170 175  
 Ser Leu Pro Pro Phe Phe Trp Arg Gln Ala Lys Ala Glu Glu Glu Met  
 180 185 190  
 Leu Asp Cys Phe Val Asn Thr Asp His Val Leu Tyr Thr Val Tyr Ser  
 195 200 205  
 Thr Val Gly Ala Phe Tyr Leu Pro Thr Leu Leu Leu Ile Ala Leu Tyr



|   |                         |                     |
|---|-------------------------|---------------------|
| 210   | 215                     | 220                 |
| Gly Arg Ile Tyr Val   | Glu Ala Arg Ser Arg Ile | Leu Lys Gln Thr Pro |
| 225   | 230                     | 235                 |
| Asn Lys Thr Gly Lys Arg Leu Thr Arg Ala Gln Leu Ile Thr Asp Ser |                         | 240                 |
|   | 245                     | 250                 |
| Pro Gly Ser Thr Ser Ser Val Thr Ser Ile Asn Ser Arg Ala Pro Asp |                         | 255                 |
|   | 260                     | 265                 |
| Val Pro Ser Glu Ser Gly Ser Pro Val Tyr Val Asn Gln Val Lys Val |                         | 270                 |
|   | 275                     | 280                 |
| Arg Val Ser Asp Ala Leu Leu Glu Lys Lys Lys Leu Met Ala Ala Arg |                         | 285                 |
|   | 290                     | 295                 |
| Glu Arg Lys Ala Thr Lys Thr Leu Gly Ile Ile Leu Gly Ala Phe Ile |                         | 300                 |
| 305   | 310                     | 315                 |
| Val Cys Trp Leu Pro Phe Phe Ile Ile Ser Leu Val Met Pro Ile Cys |                         | 320                 |
|   | 325                     | 330                 |
| Lys Asp Ala Cys Trp Phe His Met Ala Ile Phe Asp Phe Phe Asn Trp |                         | 335                 |
|   | 340                     | 345                 |
| Leu Gly Tyr Leu Asn Ser Leu Ile Asn Pro Ile Ile Tyr Thr Met Ser |                         | 350                 |
|   | 355                     | 360                 |
| Asn Glu Asp Phe Lys Gln Ala Phe His Lys Leu Ile Arg Phe Lys Cys |                         | 365                 |
|   | 370                     | 375                 |
| Ala Gly   |                         | 380                 |
| 385   |                         |                     |

&lt;210&gt; 822

&lt;211&gt; 7608

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 822

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gaatcaggag cctgtccata attctgttac tatcagtcgt gcagacaatg tcccaagctt 180  
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gctgcttggc cctcctcgc tcttiagccc tcaggtttct tactctctag cctcctcctc 300  
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tgtgtggggt tagtggcttc ctacagcaga caccaccgg gggccgtgtg gaaagcgtga 780  
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 taacagtaga ttctagctac agatagctga ctctgggaca cctacaagaa ttgtttgtaat 180  
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Met Asp Ile Glu Ala Tyr

|   |     |
|---|-----|
| ttt gaa agg att ggt tac aag aac tca gtg aat aaa ttg gac tta gcc | 282 |
| Phe Glu Arg Ile Gly Tyr Lys Asn Ser Val Asn Lys Leu Asp Leu Ala |     |
| 10 15 20  |     |
| aca tta act gaa gtt ctt cag cac cag atg cga gca gtt cct ttt gag | 330 |
| Thr Leu Thr Glu Val Leu Gln His Gln Met Arg Ala Val Pro Phe Glu |     |
| 25 30 35  |     |
| aat ctt aac atg cat tgt gga gaa gcc atg cat ctg gat tta cag gac | 378 |
| Asn Leu Asn Met His Cys Gly Glu Ala Met His Leu Asp Leu Gln Asp |     |
| 40 45 50  |     |
| att ttt gac cac ata gta agg aag aag aga ggt gga tgg tgt ctc cag | 426 |
| Ile Phe Asp His Ile Val Arg Lys Lys Arg Gly Gly Trp Cys Leu Gln |     |
| 55 60 65 70   |     |
| gtt aat cat ctg ctg tac tgg gct ctg acc aaa atg ggc ttt gaa acc | 474 |
| Val Asn His Leu Leu Tyr Trp Ala Leu Thr Lys Met Gly Phe Glu Thr |     |
| 75 80 85  |     |
| aca atg ttg gga gga tat gtt tac ata act cca gtc agc aaa tat agc | 522 |
| Thr Met Leu Gly Gly Tyr Val Tyr Ile Thr Pro Val Ser Lys Tyr Ser |     |
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| agt gaa atg gtc cac ctt cta gta cag gtg acc atc agt gac agg aag | 570 |
| Ser Glu Met Val His Leu Leu Val Gln Val Thr Ile Ser Asp Arg Lys |     |
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| tac att gtg gat tcc gcc tat gga ggc tcc tac cag atg tgg gag cct | 618 |
| Tyr Ile Val Asp Ser Ala Tyr Gly Gly Ser Tyr Gln Met Trp Glu Pro |     |
| 120 125 130   |     |
| ctg gaa tta aca tct ggg aag gat cag cct cag gtg cct gcc atc ttc | 666 |
| Leu Glu Leu Thr Ser Gly Lys Asp Gln Pro Gln Val Pro Ala Ile Phe |     |
| 135 140 145 150   |     |
| ctt ttg aca gag gag aat gga acc tgg tac ttg gac caa atc aga aga | 714 |
| Leu Leu Thr Glu Glu Asn Gly Thr Trp Tyr Leu Asp Gln Ile Arg Arg |     |

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| 155  | 160 | 165 |      |
| gag cag tat gtt cca aat gaa gaa ttt gtt aac tca gac ctc ctt gaa    |     |     | 762  |
| Glu Gln Tyr Val Pro Asn Glu Glu Phe Val Asn Ser Asp Leu Leu Glu    |     |     |      |
| 170  | 175 | 180 |      |
| aag aac aaa tat cga aaa atc tac tcc ttt act ctt gag ccc cga gtt    |     |     | 810  |
| Lys Asn Lys Tyr Arg Lys Ile Tyr Ser Phe Thr Leu Glu Pro Arg Val    |     |     |      |
| 185  | 190 | 195 |      |
| atc gag gat ttt gaa tat gtg aat agc tat ctt cag aca tcg cca gca    |     |     | 858  |
| Ile Glu Asp Phe Glu Tyr Val Asn Ser Tyr Leu Gln Thr Ser Pro Ala    |     |     |      |
| 200  | 205 | 210 |      |
| tct gtg ttt gta agc aca tcg ttc tgt tcc ttg cag acc tcg gaa ggg    |     |     | 906  |
| Ser Val Phe Val Ser Thr Ser Phe Cys Ser Leu Gln Thr Ser Glu Gly    |     |     |      |
| 215  | 220 | 225 | 230  |
| gtt cac tgt tta gtg ggc tcc acc ttt aca agt agg aga ttc agc tat    |     |     | 954  |
| Val His Cys Leu Val Gly Ser Thr Phe Thr Ser Arg Arg Phe Ser Tyr    |     |     |      |
| 235  | 240 | 245 |      |
| aag gac gat gta gat ctg gtt gag ttt aaa tat gtg aat gag gaa gaa    |     |     | 1002 |
| Lys Asp Asp Val Asp Leu Val Glu Phe Lys Tyr Val Asn Glu Glu Glu    |     |     |      |
| 250  | 255 | 260 |      |
| ata gaa gat gta ctg aaa acc gca ttt ggc att tct ttg gag aga aag    |     |     | 1050 |
| Ile Glu Asp Val Leu Lys Thr Ala Phe Gly Ile Ser Leu Glu Arg Lys    |     |     |      |
| 265  | 270 | 275 |      |
| ttt gtg ccc aaa cat ggt gaa cta gtt ttt act att tag ggtaaggagc     |     |     | 1099 |
| Phe Val Pro Lys His Gly Glu Leu Val Phe Thr Ile                    |     |     |      |
| 280  | 285 | 290 |      |
| aaaattgttc tccattgtta tttcatagtc ttaaacccttc taaacatatg caaatgtatc |     |     | 1159 |
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tcaacaaa

1347

&lt;210&gt; 824

&lt;211&gt; 290

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 824

Met Asp Ile Glu Ala Tyr Phe Glu Arg Ile Gly Tyr Lys Asn Ser Val

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Asn Lys Leu Asp Leu Ala Thr Leu Thr Glu Val Leu Gln His Gln Met

20 25 30

Arg Ala Val Pro Phe Glu Asn Leu Asn Met His Cys Gly Glu Ala Met

35 40 45

His Leu Asp Leu Gln Asp Ile Phe Asp His Ile Val Arg Lys Lys Arg

50 55 60

Gly Gly Trp Cys Leu Gln Val Asn His Leu Leu Tyr Trp Ala Leu Thr

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Lys Met Gly Phe Glu Thr Thr Met Leu Gly Gly Tyr Val Tyr Ile Thr

85 90 95

Pro Val Ser Lys Tyr Ser Ser Glu Met Val His Leu Leu Val Gln Val

100 105 110

Thr Ile Ser Asp Arg Lys Tyr Ile Val Asp Ser Ala Tyr Gly Gly Ser

115 120 125

Tyr Gln Met Trp Glu Pro Leu Glu Leu Thr Ser Gly Lys Asp Gln Pro

130 135 140

Gln Val Pro Ala Ile Phe Leu Leu Thr Glu Glu Asn Gly Thr Trp Tyr

145 150 155 160

Leu Asp Gln Ile Arg Arg Glu Gln Tyr Val Pro Asn Glu Glu Phe Val

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|   | 165 |     | 170 |     | 175 |
| Asn Ser Asp Leu Leu Glu Lys Asn Lys Tyr Arg Lys Ile Tyr Ser Phe |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Thr Leu Glu Pro Arg Val Ile Glu Asp Phe Glu Tyr Val Asn Ser Tyr |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |
| Leu Gln Thr Ser Pro Ala Ser Val Phe Val Ser Thr Ser Phe Cys Ser |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |
| Leu Gln Thr Ser Glu Gly Val His Cys Leu Val Gly Ser Thr Phe Thr |     |     |     |     |     |
| 225   |     | 230 |     | 235 | 240 |
| Ser Arg Arg Phe Ser Tyr Lys Asp Asp Val Asp Leu Val Glu Phe Lys |     |     |     |     |     |
|   | 245 |     | 250 |     | 255 |
| Tyr Val Asn Glu Glu Glu Ile Glu Asp Val Leu Lys Thr Ala Phe Gly |     |     |     |     |     |
|   | 260 |     | 265 |     | 270 |
| Ile Ser Leu Glu Arg Lys Phe Val Pro Lys His Gly Glu Leu Val Phe |     |     |     |     |     |
|   | 275 |     | 280 |     | 285 |
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&lt;210&gt; 825

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25

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35

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45

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 Arg Ser Lys Arg Gly Trp Val Trp Asn Gln Phe Phe Val Ile Glu Glu

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55

60

65

tac acc ggg cct gac cct gtg ctg gtg ggc agg ctt cat tct gac att 658  
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70

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85

90

95

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100

105

110

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Arg Glu Ala Lys Glu Glu Tyr His Val Val Ile Gln Ala Lys Asp Met  
230 235 240  
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Gly Gly His Met Gly Gly Leu Ser Gly Thr Thr Lys Val Thr Ile Thr  
245 250 255  
ctg act gat gtc aac gac aac cca cca aag ttt cca cag agc gtg tac 1234  
Leu Thr Asp Val Asn Asp Asn Pro Pro Lys Phe Pro Gln Ser Val Tyr

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| 260   | 265  | 270 |     |
| cag atg tct gta tca gaa gca gct gtc ccg ggg gag gaa gta gga agg | 1282 |     |     |
| Gln Met Ser Val Ser Glu Ala Ala Val Pro Gly Glu Glu Val Gly Arg |      |     |     |
| 275   | 280  | 285 |     |
| gtg aag gct aaa gac cca gac att gga gaa aat ggc tta gtc aca tac | 1330 |     |     |
| Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn Gly Leu Val Thr Tyr |      |     |     |
| 290   | 295  | 300 | 305 |
| aat atc gtt gat gga gac ggc ata gaa ctg ttt gaa att aca aca gac | 1378 |     |     |
| Asn Ile Val Asp Gly Asp Gly Ile Glu Leu Phe Glu Ile Thr Thr Asp |      |     |     |
| 310   | 315  | 320 |     |
| tat gaa aca cag gat ggt gtg gtg aag ctg aaa aag cct gta gat ttt | 1426 |     |     |
| Tyr Glu Thr Gln Asp Gly Val Val Lys Leu Lys Lys Pro Val Asp Phe |      |     |     |
| 325   | 330  | 335 |     |
| gaa acc aaa aga gct tat agc ttg aag ata gag gcc gcc aat gtt cac | 1474 |     |     |
| Glu Thr Lys Arg Ala Tyr Ser Leu Lys Ile Glu Ala Ala Asn Val His |      |     |     |
| 340   | 345  | 350 |     |
| att gat ccg aag ttc atc agc aat gga cct ttc aag gac act gtg acc | 1522 |     |     |
| Ile Asp Pro Lys Phe Ile Ser Asn Gly Pro Phe Lys Asp Thr Val Thr |      |     |     |
| 355   | 360  | 365 |     |
| gtc aag att tca gta gaa gat gcc gat gag cct ccc atg ttc ttg gcc | 1570 |     |     |
| Val Lys Ile Ser Val Glu Asp Ala Asp Glu Pro Pro Met Phe Leu Ala |      |     |     |
| 370   | 375  | 380 | 385 |
| cca agt tat atc cat gaa gtt caa gaa aat gca gct gct ggc act gtg | 1618 |     |     |
| Pro Ser Tyr Ile His Glu Val Gln Glu Asn Ala Ala Ala Gly Thr Val |      |     |     |
| 390   | 395  | 400 |     |
| gtt ggg aga gta cat gcc aaa gac cca gat gct gcc aac agc cca ata | 1666 |     |     |
| Val Gly Arg Val His Ala Lys Asp Pro Asp Ala Ala Asn Ser Pro Ile |      |     |     |
| 405   | 410  | 415 |     |
| agg tat tca att gat cgt cat act gac ctc gac agg ttt ttc acg att | 1714 |     |     |

|   |      |
|---|------|
| Arg Tyr Ser Ile Asp Arg His Thr Asp Leu Asp Arg Phe Phe Thr Ile |      |
| 420   | 425  |
| 430   |      |
| aat cca gaa gat ggt ttt att aaa act acg aaa cct cta gat agg gaa | 1762 |
| Asn Pro Glu Asp Gly Phe Ile Lys Thr Thr Lys Pro Leu Asp Arg Glu |      |
| 435   | 440  |
| 445   |      |
| gaa act gcc tgg ctc aac atc tct gtc ttc gca gca gat att cac aac | 1810 |
| Glu Thr Ala Trp Leu Asn Ile Ser Val Phe Ala Ala Asp Ile His Asn |      |
| 450   | 455  |
| 460   | 465  |
| aga cat cag gaa acc aaa gtc cca gtg gcc atc agg gtc ctg gat gtc | 1858 |
| Arg His Gln Glu Thr Lys Val Pro Val Ala Ile Arg Val Leu Asp Val |      |
| 470   | 475  |
| 480   |      |
| aat gac aat gct cct aag ttt gct gcc cct tat gaa ggt ttt atc tgt | 1906 |
| Asn Asp Asn Ala Pro Lys Phe Ala Ala Pro Tyr Glu Gly Phe Ile Cys |      |
| 485   | 490  |
| 495   |      |
| gag agc gat cac ccc aag gca ctc tcc aac cag cca ata gtt aca gtt | 1954 |
| Glu Ser Asp His Pro Lys Ala Leu Ser Asn Gln Pro Ile Val Thr Val |      |
| 500   | 505  |
| 510   |      |
| agt gca gat gac cag gac gac aca gcc aat gga cca aga ttt atc ttc | 2002 |
| Ser Ala Asp Asp Gln Asp Asp Thr Ala Asn Gly Pro Arg Phe Ile Phe |      |
| 515   | 520  |
| 525   |      |
| agc cta ccc cct gaa atc atg cac aac cca aac ttc aca gta aga gac | 2050 |
| Ser Leu Pro Pro Glu Ile Met His Asn Pro Asn Phe Thr Val Arg Asp |      |
| 530   | 535  |
| 540   | 545  |
| aac aga gat aac act gca gga gta tat gcc cga cgt gga ggg ttc agt | 2098 |
| Asn Arg Asp Asn Thr Ala Gly Val Tyr Ala Arg Arg Gly Gly Phe Ser |      |
| 550   | 555  |
| 560   |      |
| cgg cag aag cag gac ttc tac ctc ctg ccc att gtg atc agt gat ggt | 2146 |
| Arg Gln Lys Gln Asp Phe Tyr Leu Leu Pro Ile Val Ile Ser Asp Gly |      |
| 565   | 570  |
| 575   |      |

ggc att cca cct atg agt agc acc aat acc ctc act atc aaa gtc tgt 2194  
 Gly Ile Pro Pro Met Ser Ser Thr Asn Thr Leu Thr Ile Lys Val Cys  
 580 585 590  
 ggc tgt gat gtg aat ggg gca ctg ttg tcc tgt aac gct gaa gcc tac 2242  
 Gly Cys Asp Val Asn Gly Ala Leu Leu Ser Cys Asn Ala Glu Ala Tyr  
 595 600 605  
 atc ctg aat gcc ggt ctg agc act ggg gca ctg atc gcc atc ctt gcc 2290  
 Ile Leu Asn Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu Ala  
 610 615 620 625  
 tgc atc gtc att ctt ctg gtc atc gtt gtg ctg ttt gtt acc ctg agg 2338  
 Cys Ile Val Ile Leu Leu Val Ile Val Val Leu Phe Val Thr Leu Arg  
 630 635 640  
 agg caa aag aaa gaa cca ctc att gta ttt gaa gag gag gat gtc cgt 2386  
 Arg Gln Lys Lys Glu Pro Leu Ile Val Phe Glu Glu Glu Asp Val Arg  
 645 650 655  
 gag aac atc ata acc tat gat gat gaa ggg ggt ggt gag gaa gac act 2434  
 Glu Asn Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp Thr  
 660 665 670  
 gaa gcc ttc gac ata gcc acc ctg cag aat cct gac ggc atc aat gga 2482  
 Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro Asp Gly Ile Asn Gly  
 675 680 685  
 ttt atc cct cgc aaa gat atc aaa cct gag tat cag tat atg cct aga 2530  
 Phe Ile Pro Arg Lys Asp Ile Lys Pro Glu Tyr Gln Tyr Met Pro Arg  
 690 695 700 705  
 cct ggg ctg cga cca gca ccc aac agt gtg gat gtg gac gac ttc atc 2578  
 Pro Gly Leu Arg Pro Ala Pro Asn Ser Val Asp Val Asp Asp Phe Ile  
 710 715 720  
 aac aca aga ata cag gag gca gat aat gat ccc aca gcc cct ccc tat 2626  
 Asn Thr Arg Ile Gln Glu Ala Asp Asn Asp Pro Thr Ala Pro Pro Tyr

|   |     |     |     |
|---|-----|-----|-----|
| 725   | 730 | 735 |     |
| gac tcc atc caa atc tat ggt tat gag ggc cgg ggt tcc atg gct ggg 2674    |     |     |     |
| Asp Ser Ile Gln Ile Tyr Gly Tyr Glu Gly Arg Gly Ser Met Ala Gly         |     |     |     |
| 740   | 745 | 750 |     |
| tcc ctg agc tcc ttg gag tct gcc acg aca gac tca gac ctg gac tac 2722    |     |     |     |
| Ser Leu Ser Ser Leu Glu Ser Ala Thr Thr Asp Ser Asp Leu Asp Tyr         |     |     |     |
| 755   | 760 | 765 |     |
| gac tat cta cag aac tgg gga cct cgt ttt aag aaa ctg gca gac ttg 2770    |     |     |     |
| Asp Tyr Leu Gln Asn Trp Gly Pro Arg Phe Lys Lys Leu Ala Asp Leu         |     |     |     |
| 770   | 775 | 780 | 785 |
| tat ggc tcc aaa gac act ttt gat gat gac tct taa caataatggt 2816         |     |     |     |
| Tyr Gly Ser Lys Asp Thr Phe Asp Asp Asp Ser                             |     |     |     |
| 790   | 795 |     |     |
| acaaatttgg ccttaagaac tgtgtctggc attctcaaga atctagaaga tgtgttaaaca 2876 |     |     |     |
| ggtatttttt taaatcaagg aaaggctcat ttaaaacaag cagagtttta cagagaggaa 2936  |     |     |     |
| acatttaata aaactgcaag gacatcaaag tggaaaatac tgtgaagtac cttttccac 2996   |     |     |     |
| ttaaaaagca aatattgaag ttgtttatca acttcagtag aaaaaaaaa accacttggc 3056   |     |     |     |
| acacaaaata tttaaataaa ggagaagtcc acggtgaact tacaatgaag ggaaatcgtc 3116  |     |     |     |
| tatgtgttaa gaacatctaa gtctctctta tttatttttt taatttgica aagaagcttc 3176  |     |     |     |
| cacaaaatta gaaaggacaa cagtcttgag ctgtaatttc gccitaaact atggacactc 3236  |     |     |     |
| tatctgtagt gcgtttttta acttgaaata tataatatcc agccagctta aaccataca 3296   |     |     |     |
| atgtatgtac aatacaatgt acaattatgt ctcttgagca tcaatcttgt tactgctgat 3356  |     |     |     |
| tcttgtaaat ctttttgctt ctactttcat cctaaactaa tacgtgccag atataactgt 3416  |     |     |     |
| cttgtttcag tgaggagcac cctatttcta tgtcattttt aatgtatcta ttgtacaat 3476   |     |     |     |
| tttaaagttc ttattttagt atacatacaa atatcagtat tctgacatgt acgaaaatgt 3536  |     |     |     |
| tacagcatca cacttatatt ttatgaacat tgtactgttg ctttaatatg agcttcaata 3596  |     |     |     |
| taagaagcaa cttttgaaat aaaaaaaga ttctttttta attatgggtt tgattcctta 3656   |     |     |     |
| acattggaaa aaaaaaaggt tctaataatc cattataatcc taattaatgt gatcttaata 3716 |     |     |     |
| accctattta tgatctgttg tagtctgctg ctctcattgt ttatttaaat caaatatgtt 3776  |     |     |     |



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Gln Ala Val Asp Arg Asp Thr Asn Arg Pro Leu Glu Pro Pro Ser Glu  
 130 135 140  
 Phe Ile Val Lys Val Gln Asp Ile Asn Asp Asn Pro Pro Glu Phe Leu  
 145 150 155 160  
 His Glu Ile Tyr His Ala Asn Val Pro Glu Arg Ser Asn Val Gly Thr  
 165 170 175  
 Ser Val Ile Gln Val Thr Ala Ser Asp Ala Asp Asp Pro Thr Tyr Gly  
 180 185 190  
 Asn Ser Ala Lys Leu Val Tyr Ser Ile Leu Glu Gly Gln Pro Tyr Phe  
 195 200 205  
 Ser Val Glu Ala Gln Thr Gly Ile Ile Arg Thr Ala Leu Pro Asn Met  
 210 215 220  
 Asp Arg Glu Ala Lys Glu Glu Tyr His Val Val Ile Gln Ala Lys Asp  
 225 230 235 240  
 Met Gly Gly His Met Gly Gly Leu Ser Gly Thr Thr Lys Val Thr Ile  
 245 250 255  
 Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Lys Phe Pro Gln Ser Val  
 260 265 270  
 Tyr Gln Met Ser Val Ser Glu Ala Ala Val Pro Gly Glu Glu Val Gly  
 275 280 285  
 Arg Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn Gly Leu Val Thr  
 290 295 300  
 Tyr Asn Ile Val Asp Gly Asp Gly Ile Glu Leu Phe Glu Ile Thr Thr  
 305 310 315 320  
 Asp Tyr Glu Thr Gln Asp Gly Val Val Lys Leu Lys Lys Pro Val Asp  
 325 330 335  
 Phe Glu Thr Lys Arg Ala Tyr Ser Leu Lys Ile Glu Ala Ala Asn Val  
 340 345 350  
 His Ile Asp Pro Lys Phe Ile Ser Asn Gly Pro Phe Lys Asp Thr Val

|   |     |     |
|---|-----|-----|
| 355   | 360 | 365 |
| Thr Val Lys Ile Ser Val Glu Asp Ala Asp Glu Pro Pro Met Phe Leu |     |     |
| 370   | 375 | 380 |
| Ala Pro Ser Tyr Ile His Glu Val Gln Glu Asn Ala Ala Ala Gly Thr |     |     |
| 385   | 390 | 395 |
| Val Val Gly Arg Val His Ala Lys Asp Pro Asp Ala Ala Asn Ser Pro |     |     |
| 405   | 410 | 415 |
| Ile Arg Tyr Ser Ile Asp Arg His Thr Asp Leu Asp Arg Phe Phe Thr |     |     |
| 420   | 425 | 430 |
| Ile Asn Pro Glu Asp Gly Phe Ile Lys Thr Thr Lys Pro Leu Asp Arg |     |     |
| 435   | 440 | 445 |
| Glu Glu Thr Ala Trp Leu Asn Ile Ser Val Phe Ala Ala Asp Ile His |     |     |
| 450   | 455 | 460 |
| Asn Arg His Gln Glu Thr Lys Val Pro Val Ala Ile Arg Val Leu Asp |     |     |
| 465   | 470 | 475 |
| Val Asn Asp Asn Ala Pro Lys Phe Ala Ala Pro Tyr Glu Gly Phe Ile |     |     |
| 485   | 490 | 495 |
| Cys Glu Ser Asp His Pro Lys Ala Leu Ser Asn Gln Pro Ile Val Thr |     |     |
| 500   | 505 | 510 |
| Val Ser Ala Asp Asp Gln Asp Asp Thr Ala Asn Gly Pro Arg Phe Ile |     |     |
| 515   | 520 | 525 |
| Phe Ser Leu Pro Pro Glu Ile Met His Asn Pro Asn Phe Thr Val Arg |     |     |
| 530   | 535 | 540 |
| Asp Asn Arg Asp Asn Thr Ala Gly Val Tyr Ala Arg Arg Gly Gly Phe |     |     |
| 545   | 550 | 555 |
| Ser Arg Gln Lys Gln Asp Phe Tyr Leu Leu Pro Ile Val Ile Ser Asp |     |     |
| 565   | 570 | 575 |
| Gly Gly Ile Pro Pro Met Ser Ser Thr Asn Thr Leu Thr Ile Lys Val |     |     |
| 580   | 585 | 590 |

Cys Gly Cys Asp Val Asn Gly Ala Leu Leu Ser Cys Asn Ala Glu Ala  
 595 600 605  
 Tyr Ile Leu Asn Ala Gly Leu Ser Thr Gly Ala Leu Ile Ala Ile Leu  
 610 615 620  
 Ala Cys Ile Val Ile Leu Leu Val Ile Val Val Leu Phe Val Thr Leu  
 625 630 635 640  
 Arg Arg Gln Lys Lys Glu Pro Leu Ile Val Phe Glu Glu Glu Asp Val  
 645 650 655  
 Arg Glu Asn Ile Ile Thr Tyr Asp Asp Glu Gly Gly Gly Glu Glu Asp  
 660 665 670  
 Thr Glu Ala Phe Asp Ile Ala Thr Leu Gln Asn Pro Asp Gly Ile Asn  
 675 680 685  
 Gly Phe Ile Pro Arg Lys Asp Ile Lys Pro Glu Tyr Gln Tyr Met Pro  
 690 695 700  
 Arg Pro Gly Leu Arg Pro Ala Pro Asn Ser Val Asp Val Asp Asp Phe  
 705 710 715 720  
 Ile Asn Thr Arg Ile Gln Glu Ala Asp Asn Asp Pro Thr Ala Pro Pro  
 725 730 735  
 Tyr Asp Ser Ile Gln Ile Tyr Gly Tyr Glu Gly Arg Gly Ser Met Ala  
 740 745 750  
 Gly Ser Leu Ser Ser Leu Glu Ser Ala Thr Thr Asp Ser Asp Leu Asp  
 755 760 765  
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&lt;210&gt; 827

&lt;211&gt; 1657

&lt;212&gt; DNA

&lt;213&gt;- Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (103).. (903)

&lt;400&gt; 827

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                                     Met Gly Ala Gly
                                     1
tgt gtc aaa gtc acc aag tat ttc ctc ttc ctc ttc aac ttg ctg ttc      162
Cys Val Lys Val Thr Lys Tyr Phe Leu Phe Leu Phe Asn Leu Leu Phe
  5              10              15              20
ttt atc ctg ggt gct gtg atc ctg ggc ttc ggg gtg tgg att ctt gca      210
Phe Ile Leu Gly Ala Val Ile Leu Gly Phe Gly Val Trp Ile Leu Ala
          25              30              35
gac aag aac agc ttc att tcc gtc cta caa acc tca tcc agc tcg ctg      258
Asp Lys Asn Ser Phe Ile Ser Val Leu Gln Thr Ser Ser Ser Ser Leu
          40              45              50
cag gtg ggg gct tac gtc ttc atc ggt gtg ggc gcc atc acc ata gtg      306
Gln Val Gly Ala Tyr Val Phe Ile Gly Val Gly Ala Ile Thr Ile Val
          55              60              65
atg ggc ttc ctg ggc tgt atc ggt gct gtc aat gag gtc cgc tgc ttg      354
Met Gly Phe Leu Gly Cys Ile Gly Ala Val Asn Glu Val Arg Cys Leu
          70              75              80
ctg ggt ctg tac ttt gtc ttc ctt ctg ctg atc ctc atc gca cag gtg      402
Leu Gly Leu Tyr Phe Val Phe Leu Leu Leu Ile Leu Ile Ala Gln Val

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|   |     |     |     |     |
|---|-----|-----|-----|-----|
| 85  | 90  | 95  | 100 |     |
| acc gta ggg gtc ctc ttc tac ttc aac gct gac aag ctg aag aag gag |     |     |     | 450 |
| Thr Val Gly Val Leu Phe Tyr Phe Asn Ala Asp Lys Leu Lys Lys Glu |     |     |     |     |
|   | 105 | 110 | 115 |     |
| atg ggg aac aca gtg atg gac atc att cgc aac tac act gcc aat gcc |     |     |     | 498 |
| Met Gly Asn Thr Val Met Asp Ile Ile Arg Asn Tyr Thr Ala Asn Ala |     |     |     |     |
|   | 120 | 125 | 130 |     |
| acc agt agc cgc gag gag gcc tgg gac tac gtg cag gcg cag gtc aag |     |     |     | 546 |
| Thr Ser Ser Arg Glu Glu Ala Trp Asp Tyr Val Gln Ala Gln Val Lys |     |     |     |     |
|   | 135 | 140 | 145 |     |
| tgc tgt ggc tgg gtc agc cac tac aac tgg aca gag aac gag gag ctc |     |     |     | 594 |
| Cys Cys Gly Trp Val Ser His Tyr Asn Trp Thr Glu Asn Glu Glu Leu |     |     |     |     |
|   | 150 | 155 | 160 |     |
| atg ggc ttt acc aag acc act tac cca tgc tcc tgc gag aag atc aag |     |     |     | 642 |
| Met Gly Phe Thr Lys Thr Thr Tyr Pro Cys Ser Cys Glu Lys Ile Lys |     |     |     |     |
|   | 165 | 170 | 175 | 180 |
| gaa gag gac aac cag ctc att gtg aag aaa gga ttc tgt gag gct gat |     |     |     | 690 |
| Glu Glu Asp Asn Gln Leu Ile Val Lys Lys Gly Phe Cys Glu Ala Asp |     |     |     |     |
|   | 185 | 190 | 195 |     |
| aac agc act gtg agc gaa aac aac cct gag gat tgg cct gtg aac act |     |     |     | 738 |
| Asn Ser Thr Val Ser Glu Asn Asn Pro Glu Asp Trp Pro Val Asn Thr |     |     |     |     |
|   | 200 | 205 | 210 |     |
| gag ggc tgc atg gag aag gcg cag gcg tgg ctt cag gag aac ttc ggc |     |     |     | 786 |
| Glu Gly Cys Met Glu Lys Ala Gln Ala Trp Leu Gln Glu Asn Phe Gly |     |     |     |     |
|   | 215 | 220 | 225 |     |
| atc ctt ctg ggc gtg tgt gct ggt gtt gct gtc att gag ctg ctg ggg |     |     |     | 834 |
| Ile Leu Leu Gly Val Cys Ala Gly Val Ala Val Ile Glu Leu Leu Gly |     |     |     |     |
|   | 230 | 235 | 240 |     |
| ttg ttc ctg tcc ata tgt ttg tgc cgg tac att cat tct gaa gac tac |     |     |     | 882 |

Leu Phe Leu Ser Ile Cys Leu Cys Arg Tyr Ile His Ser Glu Asp Tyr

245 250 255 260

agc aag gtc ccc aag tac tga gggtgctgat gtccccaccg tcctatttct 933

Ser Lys Val Pro Lys Tyr

265

ccaccctcag cctcccatgg ggcctctcta gctttttctc acatgggccc tgctccatcc 993  
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<210> 828

<211> 266

<212> PRT

<213> Mus musculus

<400> 828

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Trp Ile Leu Ala Asp Lys Asn Ser Phe Ile Ser Val Leu Gln Thr Ser  
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 Ser Ser Ser Leu Gln Val Gly Ala Tyr Val Phe Ile Gly Val Gly Ala  
 50 55 60  
 Ile Thr Ile Val Met Gly Phe Leu Gly Cys Ile Gly Ala Val Asn Glu  
 65 70 75 80  
 Val Arg Cys Leu Leu Gly Leu Tyr Phe Val Phe Leu Leu Leu Ile Leu  
 85 90 95  
 Ile Ala Gln Val Thr Val Gly Val Leu Phe Tyr Phe Asn Ala Asp Lys  
 100 105 110  
 Leu Lys Lys Glu Met Gly Asn Thr Val Met Asp Ile Ile Arg Asn Tyr  
 115 120 125  
 Thr Ala Asn Ala Thr Ser Ser Arg Glu Glu Ala Trp Asp Tyr Val Gln  
 130 135 140  
 Ala Gln Val Lys Cys Cys Gly Trp Val Ser His Tyr Asn Trp Thr Glu  
 145 150 155 160  
 Asn Glu Glu Leu Met Gly Phe Thr Lys Thr Thr Tyr Pro Cys Ser Cys  
 165 170 175  
 Glu Lys Ile Lys Glu Glu Asp Asn Gln Leu Ile Val Lys Lys Gly Phe  
 180 185 190  
 Cys Glu Ala Asp Asn Ser Thr Val Ser Glu Asn Asn Pro Glu Asp Trp  
 195 200 205  
 Pro Val Asn Thr Glu Gly Cys Met Glu Lys Ala Gln Ala Trp Leu Gln  
 210 215 220  
 Glu Asn Phe Gly Ile Leu Leu Gly Val Cys Ala Gly Val Ala Val Ile  
 225 230 235 240  
 Glu Leu Leu Gly Leu Phe Leu Ser Ile Cys Leu Cys Arg Tyr Ile His  
 245 250 255  
 Ser Glu Asp Tyr Ser Lys Val Pro Lys Tyr



260

265

&lt;210&gt; 829

&lt;211&gt; 1513

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;400&gt; 829

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aacattatgt ctttcgatag ccattcgcat catgagcgag tcatgagtgc ccagcttaat 840  
gccatcttct acgattagag gcacgtcagt ttactattc ccgggaaacg aatccactgt 900  
gcgtacagtg actgtcctgt ttacagaagg cagccctttt gctaagattg ctgcaaagt 960  
caaatactca aagcttcaag tgatatatgt atttattgtc gttactgcct ttggaagaaa 1020  
caggggatca aagttcctgt tcacctatg tattgttttc tatagctctt ctattttaaa 1080  
aataataata cagtaaagta aaaaagaaaa tgtgtaccac gaatttcgtg tagctgtatt 1140  
cagatcgtat taattatctg atcgggataa aaaaaatcac aagcaataat taggatctat 1200  
gcaattttta aactagtaat gggccaatta aaatatatat aaatatatat ttttcaacca 1260

gcattttact acctgtgacc ttcccatgc tgaattatit tgttgtgatt ttgtacagaa 1320  
 tttttaatga ctttttataa cgtggatttc ctattttaaa accatgcagc ttcatacaatt 1380  
 tttatacata tcagaaaagt agaattatat ctaatttata caaaataatt taactaattt 1440  
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<211> 220

<212> DNA

<213> Mus musculus

<400> 830

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 gaacttcaat atcagctacc gacgctacgc ttgcctctac ttctgcatct gcgtggatgt 180  
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<210> 831

<211> 1765

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (112).. (1443)

<400> 831

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Met Gln  
1

cgc cgg gac gat cct gcc tcg cgc ctc acc cgg tcc tcg ggg cgc agc 165  
 Arg Arg Asp Asp Pro Ala Ser Arg Leu Thr Arg Ser Ser Gly Arg Ser  
           5                    10                    15

tgc tcc aag gac ccg tca ggt gcc cac ccc tcg gtg cgt ctg acc ccg 213  
 Cys Ser Lys Asp Pro Ser Gly Ala His Pro Ser Val Arg Leu Thr Pro  
           20                    25                    30

tct cgg ccg tcg ccg ctt cct cac cgg ccc cgg gga ggg gga ggt ggg 261  
 Ser Arg Pro Ser Pro Leu Pro His Arg Pro Arg Gly Gly Gly Gly Gly  
           35                    40                    45                    50

ccc aga gga ggc gct cgg gcc tcg ccc gcc acg cag ccg ccg ccg ctg 309  
 Pro Arg Gly Gly Ala Arg Ala Ser Pro Ala Thr Gln Pro Pro Pro Leu  
                     55                    60                    65

ctg cct ccc tcc acc ccg ggt ccc gac gcg acg gtg gtg ggt tcc gcg 357  
 Leu Pro Pro Ser Thr Pro Gly Pro Asp Ala Thr Val Val Gly Ser Ala  
                     70                    75                    80

ccg acc ccg ctg ctg ccc ccg tca gcc aca gcc gcg gtc aag atg gag 405  
 Pro Thr Pro Leu Leu Pro Pro Ser Ala Thr Ala Ala Val Lys Met Glu  
                     85                    90                    95

ccg gag aat aag tac ctg cct gaa ctc atg gcc gag aag gac tcg ctc 453  
 Pro Glu Asn Lys Tyr Leu Pro Glu Leu Met Ala Glu Lys Asp Ser Leu  
           100                    105                    110

gac ccg tcc ttc act cac gcc atg cag ctg ctg tcc gta gaa att gag 501  
 Asp Pro Ser Phe Thr His Ala Met Gln Leu Leu Ser Val Glu Ile Glu  
           115                    120                    125                    130

aag att cag aag gga gag tca aaa aaa gat gac gag gag aat tat ttg 549  
 Lys Ile Gln Lys Gly Glu Ser Lys Lys Asp Asp Glu Glu Asn Tyr Leu  
                     135                    140                    145

gat tta tti tct cat aag aac atg aag ctg aaa gaa cgc gtg ctg ata 597  
Asp Leu Phe Ser His Lys Asn Met Lys Leu Lys Glu Arg Val Leu Ile  
150 155 160  
cct gtc aag cag tat cca aag ttc aat ttt gtg cgg aag att ctt gga 645  
Pro Val Lys Gln Tyr Pro Lys Phe Asn Phe Val Arg Lys Ile Leu Gly  
165 170 175  
cca caa gga aat aca atc aaa aga ctc cag gaa gag act ggt gca aag 693  
Pro Gln Gly Asn Thr Ile Lys Arg Leu Gln Glu Glu Thr Gly Ala Lys  
180 185 190  
atc tct gtc ttg ggg aag ggt tca atg aga gac aaa gcc aag gag gaa 741  
Ile Ser Val Leu Gly Lys Gly Ser Met Arg Asp Lys Ala Lys Glu Glu  
195 200 205 210  
gag ttg cgc aag ggt gga gac ccc aaa tat gcc cat tta aat atg gat 789  
Glu Leu Arg Lys Gly Gly Asp Pro Lys Tyr Ala His Leu Asn Met Asp  
215 220 225  
ctg cat gtc ttc att gaa gtc ttt gga ccc ccg tgt gaa gct tat gct 837  
Leu His Val Phe Ile Glu Val Phe Gly Pro Pro Cys Glu Ala Tyr Ala  
230 235 240  
ctt atg gcc cat gct atg gaa gaa gtc aag aag ttc cta gta cca gat 885  
Leu Met Ala His Ala Met Glu Glu Val Lys Lys Phe Leu Val Pro Asp  
245 250 255  
atg atg gat gat atc tgt cag gag cag ttt cta gaa ttg tcc tac ttg 933  
Met Met Asp Asp Ile Cys Gln Glu Gln Phe Leu Glu Leu Ser Tyr Leu  
260 265 270  
aac gga gta cct gaa ccc tct cgt ggt cgt ggg gta tct gtg aga gga 981  
Asn Gly Val Pro Glu Pro Ser Arg Gly Arg Gly Val Ser Val Arg Gly  
275 280 285 290  
cga gga gct gcc cct cct cct cca cct gtt ccc aga gga cgt ggt gtt 1029  
Arg Gly Ala Ala Pro Pro Pro Pro Pro Val Pro Arg Gly Arg Gly Val

|   |      |     |     |
|---|------|-----|-----|
| 295   | 300  | 305 |     |
| gga cca cct aga gga gct ttg gtt cgt gga acc cca gtg aga ggc tcc   | 1077 |     |     |
| Gly Pro Pro Arg Gly Ala Leu Val Arg Gly Thr Pro Val Arg Gly Ser   |      |     |     |
| 310   | 315  | 320 |     |
| atc acc aga ggg tcc act gtg act cga gga gtg cca ccc cca cct act   | 1125 |     |     |
| Ile Thr Arg Gly Ser Thr Val Thr Arg Gly Val Pro Pro Pro Pro Thr   |      |     |     |
| 325   | 330  | 335 |     |
| gtg agg ggt gct cca aca cca aga gct cgg aca gct ggg att cag aga   | 1173 |     |     |
| Val Arg Gly Ala Pro Thr Pro Arg Ala Arg Thr Ala Gly Ile Gln Arg   |      |     |     |
| 340   | 345  | 350 |     |
| ata cct ttg cct ccc aca cct gca cca gaa aca tac gaa gat tat gga   | 1221 |     |     |
| Ile Pro Leu Pro Pro Thr Pro Ala Pro Glu Thr Tyr Glu Asp Tyr Gly   |      |     |     |
| 355   | 360  | 365 | 370 |
| tat gat gat aca tac gca gaa cag agt tac gaa ggc tat gaa ggc tat   | 1269 |     |     |
| Tyr Asp Asp Thr Tyr Ala Glu Gln Ser Tyr Glu Gly Tyr Glu Gly Tyr   |      |     |     |
| 375   | 380  | 385 |     |
| tac agc cag agt caa ggg gag tca gag tat tat gac tat gga cat ggg   | 1317 |     |     |
| Tyr Ser Gln Ser Gln Gly Glu Ser Glu Tyr Tyr Asp Tyr Gly His Gly   |      |     |     |
| 390   | 395  | 400 |     |
| gag ctc caa gat tct tac gaa gcc tac gga caa gat gac tgg aat ggg   | 1365 |     |     |
| Glu Leu Gln Asp Ser Tyr Glu Ala Tyr Gly Gln Asp Asp Trp Asn Gly   |      |     |     |
| 405   | 410  | 415 |     |
| acc agg cca tca ctg aag gct cct cca gct agg cca gtg aag gga gca   | 1413 |     |     |
| Thr Arg Pro Ser Leu Lys Ala Pro Pro Ala Arg Pro Val Lys Gly Ala   |      |     |     |
| 420   | 425  | 430 |     |
| tac aga gag cat cca tat gga cgt tat taa aaacaaacag gagggaaaaa     | 1463 |     |     |
| Tyr Arg Glu His Pro Tyr Gly Arg Tyr                               |      |     |     |
| 435   | 440  |     |     |
| tatcagttat gagcaaagtt gttactgatt tcttgtaacc caggattcct gttgctttac | 1523 |     |     |

ccacaacaga caagtaattg tctaagtgtt tttcttcgtg gtccctttct tttccccact 1583  
 tcctccattc ttaactctgc attctggctt ctgtatgtag tattttaaaa tgagttaaaa 1643  
 tagatttagg aatatcgaat taatttttta agtgtgtaga tgcitttttt tctttgttgt 1703  
 ttaaataata acagtgtacc ttttataata aaaaaaagtt gagttaaaaa aaaacggaat 1763  
 tc 1765

<210> 832

<211> 443

<212> PRT

<213> Mus musculus

<400> 832

Met Gln Arg Arg Asp Asp Pro Ala Ser Arg Leu Thr Arg Ser Ser Gly  
 1 5 10 15  
 Arg Ser Cys Ser Lys Asp Pro Ser Gly Ala His Pro Ser Val Arg Leu  
 20 25 30  
 Thr Pro Ser Arg Pro Ser Pro Leu Pro His Arg Pro Arg Gly Gly Gly  
 35 40 45  
 Gly Gly Pro Arg Gly Gly Ala Arg Ala Ser Pro Ala Thr Gln Pro Pro  
 50 55 60  
 Pro Leu Leu Pro Pro Ser Thr Pro Gly Pro Asp Ala Thr Val Val Gly  
 65 70 75 80  
 Ser Ala Pro Thr Pro Leu Leu Pro Pro Ser Ala Thr Ala Ala Val Lys  
 85 90 95  
 Met Glu Pro Glu Asn Lys Tyr Leu Pro Glu Leu Met Ala Glu Lys Asp  
 100 105 110  
 Ser Leu Asp Pro Ser Phe Thr His Ala Met Gln Leu Leu Ser Val Glu  
 115 120 125  
 Ile Glu Lys Ile Gln Lys Gly Glu Ser Lys Lys Asp Asp Glu Glu Asn

|   |     |     |
|---|-----|-----|
| 130   | 135 | 140 |
| Tyr Leu Asp Leu Phe Ser His Lys Asn Met Lys Leu Lys Glu Arg Val |     |     |
| 145   | 150 | 155 |
| Leu Ile Pro Val Lys Gln Tyr Pro Lys Phe Asn Phe Val Arg Lys Ile |     | 160 |
|   | 165 | 170 |
| Leu Gly Pro Gln Gly Asn Thr Ile Lys Arg Leu Gln Glu Glu Thr Gly |     | 175 |
|   | 180 | 185 |
| Ala Lys Ile Ser Val Leu Gly Lys Gly Ser Met Arg Asp Lys Ala Lys |     | 190 |
|   | 195 | 200 |
| Glu Glu Glu Leu Arg Lys Gly Gly Asp Pro Lys Tyr Ala His Leu Asn |     | 205 |
|   | 210 | 215 |
| Met Asp Leu His Val Phe Ile Glu Val Phe Gly Pro Pro Cys Glu Ala |     | 220 |
| 225   | 230 | 235 |
| Tyr Ala Leu Met Ala His Ala Met Glu Glu Val Lys Lys Phe Leu Val |     | 240 |
|   | 245 | 250 |
| Pro Asp Met Met Asp Asp Ile Cys Gln Glu Gln Phe Leu Glu Leu Ser |     | 255 |
|   | 260 | 265 |
| Tyr Leu Asn Gly Val Pro Glu Pro Ser Arg Gly Arg Gly Val Ser Val |     | 270 |
|   | 275 | 280 |
| Arg Gly Arg Gly Ala Ala Pro Pro Pro Pro Pro Val Pro Arg Gly Arg |     | 285 |
|   | 290 | 295 |
| Gly Val Gly Pro Pro Arg Gly Ala Leu Val Arg Gly Thr Pro Val Arg |     | 300 |
| 305   | 310 | 315 |
| Gly Ser Ile Thr Arg Gly Ser Thr Val Thr Arg Gly Val Pro Pro Pro |     | 320 |
|   | 325 | 330 |
| Pro Thr Val Arg Gly Ala Pro Thr Pro Arg Ala Arg Thr Ala Gly Ile |     | 335 |
|   | 340 | 345 |
| Gln Arg Ile Pro Leu Pro Pro Thr Pro Ala Pro Glu Thr Tyr Glu Asp |     | 350 |
|   | 355 | 360 |
|   |     | 365 |

Tyr Gly Tyr Asp Asp Thr Tyr Ala Glu Gln Ser Tyr Glu Gly Tyr Glu  
 370 375 380  
 Gly Tyr Tyr Ser Gln Ser Gln Gly Glu Ser Glu Tyr Tyr Asp Tyr Gly  
 385 390 395 400  
 His Gly Glu Leu Gln Asp Ser Tyr Glu Ala Tyr Gly Gln Asp Asp Trp  
 405 410 415  
 Asn Gly Thr Arg Pro Ser Leu Lys Ala Pro Pro Ala Arg Pro Val Lys  
 420 425 430  
 Gly Ala Tyr Arg Glu His Pro Tyr Gly Arg Tyr  
 435 440

<210> 833

<211> 3292

<212> DNA

<213> *Mus musculus*

<220>

<221> CDS

<222> (424).. (1719)

<400> 833

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 caagcagtgc ttggggcctg ctggtttctg tagttaatac ggtattacaa atggtggggc 180  
 agggctagag gatggcaaaa agcccttggt tagccgggca gatgtctggc atttgtcaat 240  
 tactcacttt cagctcggtt ctccaacact ctgcctcact tttcttagtc cataaggtgg 300  
 taatagcaga aacatttaca cagattgacc ggtctaatac ttacaaagct ctttggagcg 360  
 tgccttgctc gcagggagca taccagtga tgaaagcggg cctcagatga aggtcttagg 420  
 ggc atg gga tgt gga gat gaa cat cga gga act tca gat tcc tca gca 468



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Cys | Gly | Asp | Glu | His | Arg | Gly | Thr | Ser | Asp | Ser | Ser | Ala |     |     |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| gat | acg | gct | gct | gca | gct | tta | agc | act | ttt | ctc | agc | ctc | tgg | gcc | ttc | 516 |
| Asp | Thr | Ala | Ala | Ala | Ala | Leu | Ser | Thr | Phe | Leu | Ser | Leu | Trp | Ala | Phe |     |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| agg | aac | aag | tgt | gca | ttt | gct | ggc | ggc | ggg | gag | ggc | gca | gat | gcg | ctt | 564 |
| Arg | Asn | Lys | Cys | Ala | Phe | Ala | Gly | Gly | Gly | Glu | Gly | Ala | Asp | Ala | Leu |     |
|     |     |     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| gtc | tat | agg | gtg | gtt | cta | gtt | ccc | cag | gcc | tcc | tgt | tcc | caa | cag | gac | 612 |
| Val | Tyr | Arg | Val | Val | Leu | Val | Pro | Gln | Ala | Ser | Cys | Ser | Gln | Gln | Asp |     |
|     |     |     | 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |
| cta | tgg | ctc | cac | tgt | ggc | tgt | ggc | tgg | aat | tat | gtg | tct | acg | tgt | tct | 660 |
| Leu | Trp | Leu | His | Cys | Gly | Cys | Gly | Trp | Asn | Tyr | Val | Ser | Thr | Cys | Ser |     |
|     |     |     | 65  |     |     |     |     |     | 70  |     |     |     |     | 75  |     |     |
| tcc | cat | acg | gta | agc | tgg | cca | gtg | aag | att | gag | ctg | cgc | aac | cta | gac | 708 |
| Ser | His | Thr | Val | Ser | Trp | Pro | Val | Lys | Ile | Glu | Leu | Arg | Asn | Leu | Asp |     |
|     |     |     | 80  |     |     |     |     |     | 85  |     |     |     |     | 90  |     |     |
| agt | tgc | agc | ctt | ttt | gtg | agc | ctg | tct | caa | ctt | cta | aat | act | agg | atc | 756 |
| Ser | Cys | Ser | Leu | Phe | Val | Ser | Leu | Ser | Gln | Leu | Leu | Asn | Thr | Arg | Ile |     |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| tca | cgt | cta | ggc | att | gtg | ttc | aat | ttg | gaa | cag | acc | tct | cta | gaa | ttg | 804 |
| Ser | Arg | Leu | Gly | Ile | Val | Phe | Asn | Leu | Glu | Gln | Thr | Ser | Leu | Glu | Leu |     |
|     |     |     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| ggc | agt | ggc | gtc | ttt | ggc | aga | tgc | agg | ttc | tcc | aaa | gcc | cca | gca | ctt | 852 |
| Gly | Ser | Gly | Val | Phe | Gly | Arg | Cys | Arg | Phe | Ser | Lys | Ala | Pro | Ala | Leu |     |
|     |     |     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |
| cct | tgc | tca | tgc | aca | ggc | ttg | ttt | gtt | tgt | ttt | tcc | cta | cag | tgc | aca | 900 |
| Pro | Cys | Ser | Cys | Thr | Gly | Leu | Phe | Val | Cys | Phe | Ser | Leu | Gln | Cys | Thr |     |
|     |     |     | 145 |     |     |     |     |     | 150 |     |     |     |     | 155 |     |     |

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|   |     |     |      |
|---|-----|-----|------|
| 305   | 310 | 315 |      |
| cag ggc cgg ggt cag gag aaa act aaa gaa gag gct gaa ctt gag gcc   |     |     | 1428 |
| Gln Gly Arg Gly Gln Glu Lys Thr Lys Glu Glu Ala Glu Leu Glu Ala   |     |     |      |
| 320   | 325 | 330 | 335  |
| aat aat gtg ttt cgt cag aag gtg gaa aat gac gta cca gcg tat gga   |     |     | 1476 |
| Asn Asn Val Phe Arg Gln Lys Val Glu Asn Asp Val Pro Ala Tyr Gly   |     |     |      |
| 340   | 345 | 350 |      |
| gaa ccc aag ctg cca tct ggt gga tgc cag ccc ctc gag aga gac agt   |     |     | 1524 |
| Glu Pro Lys Leu Pro Ser Gly Gly Cys Gln Pro Leu Glu Arg Asp Ser   |     |     |      |
| 355   | 360 | 365 |      |
| cct gca gaa ggt ttt aga gct gat cca gag ttc tgg tcg tta att gta   |     |     | 1572 |
| Pro Ala Glu Gly Phe Arg Ala Asp Pro Glu Phe Trp Ser Leu Ile Val   |     |     |      |
| 370   | 375 | 380 |      |
| gtt gtt ctg gcc atg ttc ctc att aca ccg gag aag ctt gtg atg ccc   |     |     | 1620 |
| Val Val Leu Ala Met Phe Leu Ile Thr Pro Glu Lys Leu Val Met Pro   |     |     |      |
| 385   | 390 | 395 |      |
| cga aac cca tca ctt gcc atg cag ctt ctt aga ttt agg ggg tat gag   |     |     | 1668 |
| Arg Asn Pro Ser Leu Ala Met Gln Leu Leu Arg Phe Arg Gly Tyr Glu   |     |     |      |
| 400   | 405 | 410 | 415  |
| cat att tgg tgg aaa aaa aat tgg gga ttg agc agt ttg ctt tcc ttc   |     |     | 1716 |
| His Ile Trp Trp Lys Lys Asn Trp Gly Leu Ser Ser Leu Leu Ser Phe   |     |     |      |
| 420   | 425 | 430 |      |
| tga ctgactgagc cagctgcggc tgctgattca tttctgcctg gccatgtacc        |     |     | 1769 |
|   |     |     |      |
| aacttcttgg gatataatit aacaccccca ctttctgac cagtgggtgag cctgctggag |     |     | 1829 |
| gactttctgc agctggaagc taaggatgtc agttttggcc cacactgac aattgtgatg  |     |     | 1889 |
| agctagcatc atttgttttt accccaaacc cgataactaa ggactatcac agagcctggc |     |     | 1949 |
| tatccgagga cattcctttg gagctattca tgggttgaga cacttggaag gaagccattg |     |     | 2009 |
| ctcttaattc agaggatcaa agaacacctt ggacagtgcc ctgagtgagt gccttgacac |     |     | 2069 |

tgatagatgt gggccctga actgcaagcg ctgcaaacc ctcctgttct cttttgcgtg 2129  
 tctgtatctg tattccgttt ctcagctctg caatcccgtt ctaagtgiaa cgagcaggct 2189  
 gtgctgatcg ggatgcgctg cacaccaatt tgtttctgtt gatgtttaca tcatgcgttt 2249  
 cctcgggtga ggagctgtgt gtgagtcact cacacaaacg gaggccaagg agctaaatgc 2309  
 agcgtttgct caatgttttc accacacaaa ttttaatttat ttttaataagc accgtggatt 2369  
 ctggaacgag acttcgtagt aaattatcat gcactttgaa tgtcttctga ttgcatgtga 2429  
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 ctgtagcctt ggcttagtca tttaacgttg ataattgtcaa cagtttgatc tgaaaggggg 2549  
 cagttgggtg tcctctagaa atatttactt gggaggccaa gaaaggagaa ttgaaagctc 2609  
 taggtttaag ttcagaacta gcctgggcag tggagtaaga ccttgtctca ggataaaaac 2669  
 tacaagagg actaggggtg aaactccata gtagaacatg gttattgaata ttctatccct 2729  
 gggttcagaa tctggggctc attcccagta ccataagaat aaaaatataa acagaaaaca 2789  
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 actattattt aacattccag ttcaaatgtt gatgcctctc tacatcattt ttgatccac 2909  
 atcccatttc ttaagaagaa tctgttccca agtaactata tttaattaca tgaaagcctt 2969  
 ctaaggttta ccctaactt aaactataat aagatttaat attaacatct caatatattt 3029  
 caccitggga ctatgtataa cttataaata atgtgtccat gtatataaat atattcttgg 3089  
 cttctgttaa acatatattt aagctgataa ataacattaa ggctctctgt aatgtggcag 3149  
 ctaattccac aaagggtttt gtccaagcct ctcgagatg atgcaccag aggctgaata 3209  
 ggaagtcgta gtgctttctt catgaaacct gacagtgaat aaacttgctc tgacattcct 3269  
 aaaaaaaaaa aaaaaaaact cga 3292

<210> 834

<211> 431

<212> PRT

<213> Mus musculus

<400> 834

Met Gly Cys Gly Asp Glu His Arg Gly Thr Ser Asp Ser Ser Ala Asp

|     |     |     |     |
|-----|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Thr | Ala | Ala | Ala |
| Ala | Leu | Ser | Thr |
| Phe | Leu | Ser | Leu |
| Trp | Ala | Phe | Arg |
| 20  | 25  | 30  |     |
| Asn | Lys | Cys | Ala |
| Phe | Ala | Gly | Gly |
| Gly | Glu | Gly | Ala |
| Asp | Ala | Leu | Val |
| 35  | 40  | 45  |     |
| Tyr | Arg | Val | Val |
| Leu | Val | Pro | Gln |
| Ala | Ser | Cys | Ser |
| Gln | Gln | Asp | Leu |
| 50  | 55  | 60  |     |
| Trp | Leu | His | Cys |
| Gly | Cys | Gly | Trp |
| Asn | Tyr | Val | Ser |
| Thr | Cys | Ser | Ser |
| 65  | 70  | 75  | 80  |
| His | Thr | Val | Ser |
| Trp | Pro | Val | Lys |
| Ile | Glu | Leu | Arg |
| Asn | Leu | Asp | Ser |
| 85  | 90  | 95  |     |
| Cys | Ser | Leu | Phe |
| Val | Ser | Leu | Ser |
| Gln | Leu | Leu | Asn |
| Thr | Arg | Ile | Ser |
| 100 | 105 | 110 |     |
| Arg | Leu | Gly | Ile |
| Val | Phe | Asn | Leu |
| Glu | Gln | Thr | Ser |
| Leu | Glu | Leu | Gly |
| 115 | 120 | 125 |     |
| Ser | Gly | Val | Phe |
| Gly | Arg | Cys | Arg |
| Phe | Ser | Lys | Ala |
| Pro | Ala | Leu | Pro |
| 130 | 135 | 140 |     |
| Cys | Ser | Cys | Thr |
| Gly | Leu | Phe | Val |
| Cys | Phe | Ser | Leu |
| Gln | Cys | Thr | Ser |
| 145 | 150 | 155 | 160 |
| Phe | Ile | Pro | Glu |
| Ala | Arg | Ala | Val |
| Leu | Asp | Leu | Val |
| Asp | Gln | Cys | Pro |
| 165 | 170 | 175 |     |
| Lys | Glu | Val | Gln |
| Lys | Gly | Lys | Phe |
| Gln | Val | Ile | Ala |
| Ile | Glu | Gly | Leu |
| 180 | 185 | 190 |     |
| Asp | Ala | Thr | Gly |
| Lys | Thr | Thr | Leu |
| Thr | Gln | His | Phe |
| Lys | Ser | Leu | Ser |
| 195 | 200 | 205 |     |
| Arg | Leu | Ser | Ser |
| Tyr | Ser | Arg | His |
| Pro | Pro | Cys | Ile |
| Lys | Pro | Val | Glu |
| 210 | 215 | 220 |     |
| Glu | Asp | Leu | Leu |
| Met | Met | Asn | Leu |
| Leu | Ser | Phe | Glu |
| Glu | Pro | Phe | Ile |
| 225 | 230 | 235 | 240 |

Leu Trp Ala Asn Tyr Leu Val Ala Ser Glu Ile Ala Lys Glu Ser Thr  
                     245                                    250                                    255  
 Asn Phe Pro Val Ile Val Asp Arg Tyr Trp His Ser Thr Ala Thr Tyr  
                     260                                    265                                    270  
 Ala Ile Ala Thr Glu Val Ser Gly Gly Leu Gln Tyr Leu Pro Pro Ala  
                     275                                    280                                    285  
 His His Pro Val Tyr Gln Trp Pro Gly Asp Leu Leu Lys Pro Asp Leu  
                     290                                    295                                    300  
 Val Leu Leu Leu Thr Val Asn Ser Glu Glu Arg Val Arg Arg Leu Gln  
 305                                    310                                    315                                    320  
 Gly Arg Gly Gln Glu Lys Thr Lys Glu Glu Ala Glu Leu Glu Ala Asn  
                     325                                    330                                    335  
 Asn Val Phe Arg Gln Lys Val Glu Asn Asp Val Pro Ala Tyr Gly Glu  
                     340                                    345                                    350  
 Pro Lys Leu Pro Ser Gly Gly Cys Gln Pro Leu Glu Arg Asp Ser Pro  
                     355                                    360                                    365  
 Ala Glu Gly Phe Arg Ala Asp Pro Glu Phe Trp Ser Leu Ile Val Val  
                     370                                    375                                    380  
 Val Leu Ala Met Phe Leu Ile Thr Pro Glu Lys Leu Val Met Pro Arg  
 385                                    390                                    395                                    400  
 Asn Pro Ser Leu Ala Met Gln Leu Leu Arg Phe Arg Gly Tyr Glu His  
                     405                                    410                                    415  
 Ile Trp Trp Lys Lys Asn Trp Gly Leu Ser Ser Leu Leu Ser Phe  
                     420                                    425                                    430

<210> 835

<211> 3071

<212> DNA

<213> Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (402).. (1466)

&lt;400&gt; 835

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 ctggggagtc tgggtctcag gacctgggag ctccggtggg tctgcaggat cggatttgcc 120  
 cagtcccggc gggagatggc ctctcggtcg gggccgctgg gtctggaccc ctgggtggcga 180  
 gcggtgctgg gcgactatct cagctgcgcg ccgcgtcccc gcgctgcgcg tccgcccgcg 240  
 tctgccagct gcctggcacg ctggtcccca gcctcgccgc gggctgggct acggccccctg 300  
 ggctagaggc ggggtccggc tggggaccgc gctggccgcg acgctggcgg ggttggcagt 360  
 ggctggcagc cgccgccttt gggcacgtgc agcgggcgga g atg gtg ccc aag agc 416

Met Val Pro Lys Ser

1

5

tcg ggg gcg cgg agc ccc tca cct gga cgg cgg gag gag gac ggg gac 464  
 Ser Gly Ala Arg Ser Pro Ser Pro Gly Arg Arg Glu Glu Asp Gly Asp

10

15

20

gag ctg gcc cgc cgc tgc agc acc ttc atg tcc tcg ccg gtg acc gag 512  
 Glu Leu Ala Arg Arg Cys Ser Thr Phe Met Ser Ser Pro Val Thr Glu

25

30

35

ctg cgg gag ctg cgg agg agg ccg gag gac atg aag acc aag atg gag 560  
 Leu Arg Glu Leu Arg Arg Arg Pro Glu Asp Met Lys Thr Lys Met Glu

40

45

50

ctg atg att atg gag acc cag gct cag gtg tgt cgg gca ctg gcg cag 608  
 Leu Met Ile Met Glu Thr Gln Ala Gln Val Cys Arg Ala Leu Ala Gln

55

60

65

gta gat ggc gtt gcc gac ttc act gtg gac cgg tgg gag agg aaa gaa 656  
 Val Asp Gly Val Ala Asp Phe Thr Val Asp Arg Trp Glu Arg Lys Glu

|   |     |     |     |      |
|---|-----|-----|-----|------|
| 70  | 75  | 80  | 85  |      |
| gga gga ggt ggc atc acc tgt gtg ctt cag gac ggg cgt gtg ttt gaa |     |     |     | 704  |
| Gly Gly Gly Gly Ile Thr Cys Val Leu Gln Asp Gly Arg Val Phe Glu |     |     |     |      |
|   | 90  | 95  | 100 |      |
| aag gcc ggg gtg agc att tcc gtc gtt cat ggg aat ctt tct gag gaa |     |     |     | 752  |
| Lys Ala Gly Val Ser Ile Ser Val Val His Gly Asn Leu Ser Glu Glu |     |     |     |      |
|   | 105 | 110 | 115 |      |
| gca gcg aac caa atg aga ggc aga ggc aaa act ctg aag acg aaa gat |     |     |     | 800  |
| Ala Ala Asn Gln Met Arg Gly Arg Gly Lys Thr Leu Lys Thr Lys Asp |     |     |     |      |
|   | 120 | 125 | 130 |      |
| agt aaa ttg cca ttt act gct atg ggt gta agt tct gtg att cac ccc |     |     |     | 848  |
| Ser Lys Leu Pro Phe Thr Ala Met Gly Val Ser Ser Val Ile His Pro |     |     |     |      |
|   | 135 | 140 | 145 |      |
| aag aat cct tat gcg ccc acc atg cat ttc aac tac aga tac ttt gaa |     |     |     | 896  |
| Lys Asn Pro Tyr Ala Pro Thr Met His Phe Asn Tyr Arg Tyr Phe Glu |     |     |     |      |
|   | 150 | 155 | 160 | 165  |
| gta gag gaa gct gac ggt aac aca cac tgg tgg ttt ggg ggt ggc tgt |     |     |     | 944  |
| Val Glu Glu Ala Asp Gly Asn Thr His Trp Trp Phe Gly Gly Gly Cys |     |     |     |      |
|   | 170 | 175 | 180 |      |
| gac ctc aca ccg aga tac ttg aac caa gag gat gct gtc cat ttc cac |     |     |     | 992  |
| Asp Leu Thr Pro Arg Tyr Leu Asn Gln Glu Asp Ala Val His Phe His |     |     |     |      |
|   | 185 | 190 | 195 |      |
| cgt act cta aag gaa gct tgc gat cag cat ggg cca gac atc tac cca |     |     |     | 1040 |
| Arg Thr Leu Lys Glu Ala Cys Asp Gln His Gly Pro Asp Ile Tyr Pro |     |     |     |      |
|   | 200 | 205 | 210 |      |
| aag ttt aaa aaa tgg tgt gac gac tac ttc ttt ata gtt cac cgc ggg |     |     |     | 1088 |
| Lys Phe Lys Lys Trp Cys Asp Asp Tyr Phe Phe Ile Val His Arg Gly |     |     |     |      |
|   | 215 | 220 | 225 |      |
| gag cgg agg ggc atc ggc ggc atc ttt ttt gac gat ctt gac tcc ccc |     |     |     | 1136 |



Glu Arg Arg Gly Ile Gly Gly Ile Phe Phe Asp Asp Leu Asp Ser Pro  
 230 235 240 245  
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 Ser Lys Glu Glu Ala Phe Arg Phe Val Lys Thr Cys Ala Glu Ala Val  
 250 255 260  
 gtc cct tcc tat gtt ccc att gtg aag aag cac tgc gat gac tcc tac 1232  
 Val Pro Ser Tyr Val Pro Ile Val Lys Lys His Cys Asp Asp Ser Tyr  
 265 270 275  
 acc ccc agg gac aag ctg tgg cag cag ctg agg aga ggg cgg tat gtg 1280  
 Thr Pro Arg Asp Lys Leu Trp Gln Gln Leu Arg Arg Gly Arg Tyr Val  
 280 285 290  
 gag ttt aat ctg ttg tat gat cgg ggc acc aag ttt ggc ctc ttt act 1328  
 Glu Phe Asn Leu Leu Tyr Asp Arg Gly Thr Lys Phe Gly Leu Phe Thr  
 295 300 305  
 cca gga tcc agg atc gaa agt atc ttg atg tct tta cct cta aca gca 1376  
 Pro Gly Ser Arg Ile Glu Ser Ile Leu Met Ser Leu Pro Leu Thr Ala  
 310 315 320 325  
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 Arg Trp Glu Tyr Met His Ser Pro Pro Glu Asn Ser Lys Glu Ala Glu  
 330 335 340  
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 Ile Leu Glu Val Leu Arg His Pro Lys Asp Trp Val His  
 345 350 355  
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<210> 836

<211> 354

<212> PRT

<213> Mus musculus

<400> 836

Met Val Pro Lys Ser Ser Gly Ala Arg Ser Pro Ser Pro Gly Arg Arg

|   |     |     |     |
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| 20  | 25  | 30  |     |
| Ser Pro Val Thr Glu Leu Arg Glu Leu Arg Arg Arg Pro Glu Asp Met |     |     |     |
| 35  | 40  | 45  |     |
| Lys Thr Lys Met Glu Leu Met Ile Met Glu Thr Gln Ala Gln Val Cys |     |     |     |
| 50  | 55  | 60  |     |
| Arg Ala Leu Ala Gln Val Asp Gly Val Ala Asp Phe Thr Val Asp Arg |     |     |     |
| 65  | 70  | 75  | 80  |
| Trp Glu Arg Lys Glu Gly Gly Gly Gly Ile Thr Cys Val Leu Gln Asp |     |     |     |
| 85  | 90  | 95  |     |
| Gly Arg Val Phe Glu Lys Ala Gly Val Ser Ile Ser Val Val His Gly |     |     |     |
| 100   | 105 | 110 |     |
| Asn Leu Ser Glu Glu Ala Ala Asn Gln Met Arg Gly Arg Gly Lys Thr |     |     |     |
| 115   | 120 | 125 |     |
| Leu Lys Thr Lys Asp Ser Lys Leu Pro Phe Thr Ala Met Gly Val Ser |     |     |     |
| 130   | 135 | 140 |     |
| Ser Val Ile His Pro Lys Asn Pro Tyr Ala Pro Thr Met His Phe Asn |     |     |     |
| 145   | 150 | 155 | 160 |
| Tyr Arg Tyr Phe Glu Val Glu Glu Ala Asp Gly Asn Thr His Trp Trp |     |     |     |
| 165   | 170 | 175 |     |
| Phe Gly Gly Gly Cys Asp Leu Thr Pro Arg Tyr Leu Asn Gln Glu Asp |     |     |     |
| 180   | 185 | 190 |     |
| Ala Val His Phe His Arg Thr Leu Lys Glu Ala Cys Asp Gln His Gly |     |     |     |
| 195   | 200 | 205 |     |
| Pro Asp Ile Tyr Pro Lys Phe Lys Lys Trp Cys Asp Asp Tyr Phe Phe |     |     |     |
| 210   | 215 | 220 |     |
| Ile Val His Arg Gly Glu Arg Arg Gly Ile Gly Gly Ile Phe Phe Asp |     |     |     |
| 225   | 230 | 235 | 240 |



tcagaaacaa ttcaggcctt aaagtacata agcgaattca cacaggggag agaccittaca 480  
aatgtgaaga atgtggaaaa gcctacatct cactctcaag ccttataaat cataaaagtg 540  
tacaccctgg ggaaaagccc ttttaagtgtg atgagtgtga gaaagccttc atcacatata 600  
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 ttcagaaagc attgtaaaaa tgttatgtac gacatacatg tgtatatgtt ctgtagtaaa 2460  
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<210> 838

<211> 4697

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (8).. (2029)

<400> 838

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 gtg cgg ctg cag tat ggg agc cgc gtg gag gcg gtg tac gtg ctg ggc 97  
 Val Arg Leu Gln Tyr Gly Ser Arg Val Glu Ala Val Tyr Val Leu Gly  
 15 20 25 30  
 acg cag ctc tgg acc gat gtc tac agt gca gca cct gct ggg gcc aaa 145  
 Thr Gln Leu Trp Thr Asp Val Tyr Ser Ala Ala Pro Ala Gly Ala Lys  
 35 40 45  
 acc ttc agc ctg aag cac tcg gag ggt gtg aag gtg gag gtc gta cgt 193  
 Thr Phe Ser Leu Lys His Ser Glu Gly Val Lys Val Glu Val Val Arg

|   |     |     |     |
|---|-----|-----|-----|
| 50  | 55  | 60  |     |
| gat gga gag gca gag gag gtg gtc acc aat ggc aag cag cgc tgg gcc | 241 |     |     |
| Asp Gly Glu Ala Glu Glu Val Val Thr Asn Gly Lys Gln Arg Trp Ala |     |     |     |
| 65  | 70  | 75  |     |
| ctg tca ccc agc agc aca ctg cgg ctc agc atg gcc cag gcc agc aca | 289 |     |     |
| Leu Ser Pro Ser Ser Thr Leu Arg Leu Ser Met Ala Gln Ala Ser Thr |     |     |     |
| 80  | 85  | 90  |     |
| gag gcc agc agc gac aag gtc act gtc aac tac tat gaa gag gag ggc | 337 |     |     |
| Glu Ala Ser Ser Asp Lys Val Thr Val Asn Tyr Tyr Glu Glu Glu Gly |     |     |     |
| 95  | 100 | 105 | 110 |
| agc gcc ccc att gac cag gct ggg ctc ttc ctc acg gcc att gag atc | 385 |     |     |
| Ser Ala Pro Ile Asp Gln Ala Gly Leu Phe Leu Thr Ala Ile Glu Ile |     |     |     |
| 115   | 120 | 125 |     |
| tcg ctg gat gtg gac gca gat cgg gat gga gag gtg gag aag aac aat | 433 |     |     |
| Ser Leu Asp Val Asp Ala Asp Arg Asp Gly Glu Val Glu Lys Asn Asn |     |     |     |
| 130   | 135 | 140 |     |
| cct aag aag gca tcc tgg acc tgg ggt cct gag ggc caa ggg gcc atc | 481 |     |     |
| Pro Lys Lys Ala Ser Trp Thr Trp Gly Pro Glu Gly Gln Gly Ala Ile |     |     |     |
| 145   | 150 | 155 |     |
| ctg ctg gtg aat tgt gac cga gac aca ccc tgg ttg ccc aag gag gac | 529 |     |     |
| Leu Leu Val Asn Cys Asp Arg Asp Thr Pro Trp Leu Pro Lys Glu Asp |     |     |     |
| 160   | 165 | 170 |     |
| tgt agt gac gaa aag gtc tac agc aag caa gac ctc cag gac atg tct | 577 |     |     |
| Cys Ser Asp Glu Lys Val Tyr Ser Lys Gln Asp Leu Gln Asp Met Ser |     |     |     |
| 175   | 180 | 185 | 190 |
| cag atg atc ctg cgc acc aaa ggc cct gac cgc ctg ccc gcc ggg tat | 625 |     |     |
| Gln Met Ile Leu Arg Thr Lys Gly Pro Asp Arg Leu Pro Ala Gly Tyr |     |     |     |
| 195   | 200 | 205 |     |
| gaa ata gtc ctc tac atc tcc atg tcg gac tcg gac aaa gtg ggc gtc | 673 |     |     |

Glu Ile Val Leu Tyr Ile Ser Met Ser Asp Ser Asp Lys Val Gly Val  
 210 215 220  
 ttc tac gtg gag aac ccg ttc ttt ggc cag cgc tat atc cac atc ctg 721  
 Phe Tyr Val Glu Asn Pro Phe Phe Gly Gln Arg Tyr Ile His Ile Leu  
 225 230 235  
 ggc cgg cag aag ctc tac cac gtg gtc aag tac acc ggc ggt tct gcg 769  
 Gly Arg Gln Lys Leu Tyr His Val Val Lys Tyr Thr Gly Gly Ser Ala  
 240 245 250  
 gag ttg ctg ttc ttc gtg gag ggc ctc tgt ttc ccc gat gag agt ttc 817  
 Glu Leu Leu Phe Phe Val Glu Gly Leu Cys Phe Pro Asp Glu Ser Phe  
 255 260 265 270  
 tca ggc ctg gtt tct atc cac gtc agt ctg ctg gag tat atg gcc gag 865  
 Ser Gly Leu Val Ser Ile His Val Ser Leu Leu Glu Tyr Met Ala Glu  
 275 280 285  
 ggc atc ccg ttg acc ccc atc ttc aca gac act gtg atg ttc cgg att 913  
 Gly Ile Pro Leu Thr Pro Ile Phe Thr Asp Thr Val Met Phe Arg Ile  
 290 295 300  
 gca ccc tgg att atg acc ccc aac atc ctg cct cct gtg tca gtg ttc 961  
 Ala Pro Trp Ile Met Thr Pro Asn Ile Leu Pro Pro Val Ser Val Phe  
 305 310 315  
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 Val Cys Cys Met Lys Asp Asn Tyr Leu Phe Leu Lys Glu Val Lys Asn  
 320 325 330  
 ttg gtg gag aaa acc aac tgc gaa ctg aaa gtt tgt ttc cag tac atg 1057  
 Leu Val Glu Lys Thr Asn Cys Glu Leu Lys Val Cys Phe Gln Tyr Met  
 335 340 345 350  
 aac cgc ggt gac cgc tgg atc cag gat gaa atc gag ttt ggc tat att 1105  
 Asn Arg Gly Asp Arg Trp Ile Gln Asp Glu Ile Glu Phe Gly Tyr Ile  
 355 360 365



|   |      |
|---|------|
| gag gca ccc cac aaa ggc ttc cca gta gtg ctg gac tcc cct cga gat | 1153 |
| Glu Ala Pro His Lys Gly Phe Pro Val Val Leu Asp Ser Pro Arg Asp |      |
| 370 375 380   |      |
| gga aac ctg aag gac ttc ccc att aag caa ctc ctg ggc cca gat ttc | 1201 |
| Gly Asn Leu Lys Asp Phe Pro Ile Lys Gln Leu Leu Gly Pro Asp Phe |      |
| 385 390 395   |      |
| ggc tat gtg acc cgg gag ccc ctc ttt gag act gtc acc agc ctc gac | 1249 |
| Gly Tyr Val Thr Arg Glu Pro Leu Phe Glu Thr Val Thr Ser Leu Asp |      |
| 400 405 410   |      |
| tcc ttc ggg aat ctg gag gtc agt ccc cca gtg acc gtg aat ggc aag | 1297 |
| Ser Phe Gly Asn Leu Glu Val Ser Pro Pro Val Thr Val Asn Gly Lys |      |
| 415 420 425 430   |      |
| gag tac ccg ctt ggc cgg atc ctc atc gga agc agt ttc ccc ctg tct | 1345 |
| Glu Tyr Pro Leu Gly Arg Ile Leu Ile Gly Ser Ser Phe Pro Leu Ser |      |
| 435 440 445   |      |
| gga ggc agg agg atg acc aag gtg gta cgc gac ttc ctg cag gcc cag | 1393 |
| Gly Gly Arg Arg Met Thr Lys Val Val Arg Asp Phe Leu Gln Ala Gln |      |
| 450 455 460   |      |
| cag gtg cag gcg ccc gtg gaa ctc tac tcc gac tgg ctg act gta ggc | 1441 |
| Gln Val Gln Ala Pro Val Glu Leu Tyr Ser Asp Trp Leu Thr Val Gly |      |
| 465 470 475   |      |
| cac gtc gat gag ttt atg act ttc atc ccc atc cca ggc aaa aag gaa | 1489 |
| His Val Asp Glu Phe Met Thr Phe Ile Pro Ile Pro Gly Lys Lys Glu |      |
| 480 485 490   |      |
| ttt cgg ctg ctc atg gcc agc acc tcc gcc tgc tac cag ctc ttc cga | 1537 |
| Phe Arg Leu Leu Met Ala Ser Thr Ser Ala Cys Tyr Gln Leu Phe Arg |      |
| 495 500 505 510   |      |
| gaa aag cag aag gca ggc cac ggg gag gcc gtt atg ttc aag ggc ctg | 1585 |
| Glu Lys Gln Lys Ala Gly His Gly Glu Ala Val Met Phe Lys Gly Leu |      |

|   |     |     |      |
|---|-----|-----|------|
| 515   | 520 | 525 |      |
| gga ggc atg agc agc aag cgc atc acc atc aac aag atc ctg tcc aat |     |     | 1633 |
| Gly Gly Met Ser Ser Lys Arg Ile Thr Ile Asn Lys Ile Leu Ser Asn |     |     |      |
| 530   | 535 | 540 |      |
| gag agc ctc acg cag gag aac cag tac ttc cag cgc tgt ctg gac tgg |     |     | 1681 |
| Glu Ser Leu Thr Gln Glu Asn Gln Tyr Phe Gln Arg Cys Leu Asp Trp |     |     |      |
| 545   | 550 | 555 |      |
| aac cgc gac atc ctt aag agg gag cta gcg ctg act gag aag gac att |     |     | 1729 |
| Asn Arg Asp Ile Leu Lys Arg Glu Leu Ala Leu Thr Glu Lys Asp Ile |     |     |      |
| 560   | 565 | 570 |      |
| att gac ctg ccc gcg ctc ttc aag atg gat gaa aat cac cag gcc agg |     |     | 1777 |
| Ile Asp Leu Pro Ala Leu Phe Lys Met Asp Glu Asn His Gln Ala Arg |     |     |      |
| 575   | 580 | 585 | 590  |
| gct ttc ttc cct aac atg gtg aac atg atc gtg cta gac aag gac ctg |     |     | 1825 |
| Ala Phe Phe Pro Asn Met Val Asn Met Ile Val Leu Asp Lys Asp Leu |     |     |      |
| 595   | 600 | 605 |      |
| ggc atc ccc aag cct ttc ggg ccc cag gtg gag gag gag tgc tgc ctg |     |     | 1873 |
| Gly Ile Pro Lys Pro Phe Gly Pro Gln Val Glu Glu Glu Cys Cys Leu |     |     |      |
| 610   | 615 | 620 |      |
| gag acg cac gtt cga ggc ctg ctg gag ccc ctg ggc ctc gcc tgc acg |     |     | 1921 |
| Glu Thr His Val Arg Gly Leu Leu Glu Pro Leu Gly Leu Ala Cys Thr |     |     |      |
| 625   | 630 | 635 |      |
| ttc atc gat gac atc tcc gcc tac cac aag ttc ttg gga gag gtt cac |     |     | 1969 |
| Phe Ile Asp Asp Ile Ser Ala Tyr His Lys Phe Leu Gly Glu Val His |     |     |      |
| 640   | 645 | 650 |      |
| tgt ggc acc aat gtc cgc agg aag ccg ttc gcc ttc aag tgg tgg cac |     |     | 2017 |
| Cys Gly Thr Asn Val Arg Arg Lys Pro Phe Ala Phe Lys Trp Trp His |     |     |      |
| 655   | 660 | 665 | 670  |
| atg gtg ccc tga ctgcccttttc cttttccctcc tccgctgcgg tctctgggtc   |     |     | 2069 |

## Met Val Pro

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<210> 839

<211> 673

<212> PRT

<213> Mus musculus

<400> 839

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| Met | Gln | Pro | Pro | Ile | Arg | Glu | Asn | Met | Leu | Arg | Glu | Arg | Thr | Val | Arg |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Gln | Tyr | Gly | Ser | Arg | Val | Glu | Ala | Val | Tyr | Val | Leu | Gly | Thr | Gln |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Trp | Thr | Asp | Val | Tyr | Ser | Ala | Ala | Pro | Ala | Gly | Ala | Lys | Thr | Phe |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |

Ser Leu Lys His Ser Glu Gly Val Lys Val Glu Val Val Arg Asp Gly  
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 Glu Ala Glu Glu Val Val Thr Asn Gly Lys Gln Arg Trp Ala Leu Ser  
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 Pro Ser Ser Thr Leu Arg Leu Ser Met Ala Gln Ala Ser Thr Glu Ala  
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 Ser Ser Asp Lys Val Thr Val Asn Tyr Tyr Glu Glu Glu Gly Ser Ala  
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 Pro Ile Asp Gln Ala Gly Leu Phe Leu Thr Ala Ile Glu Ile Ser Leu  
 115 120 125  
 Asp Val Asp Ala Asp Arg Asp Gly Glu Val Glu Lys Asn Asn Pro Lys  
 130 135 140  
 Lys Ala Ser Trp Thr Trp Gly Pro Glu Gly Gln Gly Ala Ile Leu Leu  
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 Val Asn Cys Asp Arg Asp Thr Pro Trp Leu Pro Lys Glu Asp Cys Ser  
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 Asp Glu Lys Val Tyr Ser Lys Gln Asp Leu Gln Asp Met Ser Gln Met  
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 Ile Leu Arg Thr Lys Gly Pro Asp Arg Leu Pro Ala Gly Tyr Glu Ile  
 195 200 205  
 Val Leu Tyr Ile Ser Met Ser Asp Ser Asp Lys Val Gly Val Phe Tyr  
 210 215 220  
 Val Glu Asn Pro Phe Phe Gly Gln Arg Tyr Ile His Ile Leu Gly Arg  
 225 230 235 240  
 Gln Lys Leu Tyr His Val Val Lys Tyr Thr Gly Gly Ser Ala Glu Leu  
 245 250 255  
 Leu Phe Phe Val Glu Gly Leu Cys Phe Pro Asp Glu Ser Phe Ser Gly  
 260 265 270  
 Leu Val Ser Ile His Val Ser Leu Leu Glu Tyr Met Ala Glu Gly Ile

|   |     |     |
|---|-----|-----|
| 275   | 280 | 285 |
| Pro Leu Thr Pro Ile Phe Thr Asp Thr Val Met Phe Arg Ile Ala Pro |     |     |
| 290   | 295 | 300 |
| Trp Ile Met Thr Pro Asn Ile Leu Pro Pro Val Ser Val Phe Val Cys |     |     |
| 305   | 310 | 315 |
|   |     | 320 |
| Cys Met Lys Asp Asn Tyr Leu Phe Leu Lys Glu Val Lys Asn Leu Val |     |     |
| 325   | 330 | 335 |
| Glu Lys Thr Asn Cys Glu Leu Lys Val Cys Phe Gln Tyr Met Asn Arg |     |     |
| 340   | 345 | 350 |
| Gly Asp Arg Trp Ile Gln Asp Glu Ile Glu Phe Gly Tyr Ile Glu Ala |     |     |
| 355   | 360 | 365 |
| Pro His Lys Gly Phe Pro Val Val Leu Asp Ser Pro Arg Asp Gly Asn |     |     |
| 370   | 375 | 380 |
| Leu Lys Asp Phe Pro Ile Lys Gln Leu Leu Gly Pro Asp Phe Gly Tyr |     |     |
| 385   | 390 | 395 |
|   |     | 400 |
| Val Thr Arg Glu Pro Leu Phe Glu Thr Val Thr Ser Leu Asp Ser Phe |     |     |
| 405   | 410 | 415 |
| Gly Asn Leu Glu Val Ser Pro Pro Val Thr Val Asn Gly Lys Glu Tyr |     |     |
| 420   | 425 | 430 |
| Pro Leu Gly Arg Ile Leu Ile Gly Ser Ser Phe Pro Leu Ser Gly Gly |     |     |
| 435   | 440 | 445 |
| Arg Arg Met Thr Lys Val Val Arg Asp Phe Leu Gln Ala Gln Gln Val |     |     |
| 450   | 455 | 460 |
| Gln Ala Pro Val Glu Leu Tyr Ser Asp Trp Leu Thr Val Gly His Val |     |     |
| 465   | 470 | 475 |
|   |     | 480 |
| Asp Glu Phe Met Thr Phe Ile Pro Ile Pro Gly Lys Lys Glu Phe Arg |     |     |
| 485   | 490 | 495 |
| Leu Leu Met Ala Ser Thr Ser Ala Cys Tyr Gln Leu Phe Arg Glu Lys |     |     |
| 500   | 505 | 510 |

Gln Lys Ala Gly His Gly Glu Ala Val Met Phe Lys Gly Leu Gly Gly  
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 530 535 540  
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 545 550 555 560  
 Asp Ile Leu Lys Arg Glu Leu Ala Leu Thr Glu Lys Asp Ile Ile Asp  
 565 570 575  
 Leu Pro Ala Leu Phe Lys Met Asp Glu Asn His Gln Ala Arg Ala Phe  
 580 585 590  
 Phe Pro Asn Met Val Asn Met Ile Val Leu Asp Lys Asp Leu Gly Ile  
 595 600 605  
 Pro Lys Pro Phe Gly Pro Gln Val Glu Glu Glu Cys Cys Leu Glu Thr  
 610 615 620  
 His Val Arg Gly Leu Leu Glu Pro Leu Gly Leu Ala Cys Thr Phe Ile  
 625 630 635 640  
 Asp Asp Ile Ser Ala Tyr His Lys Phe Leu Gly Glu Val His Cys Gly  
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<210> 840

<211> 2190

<212> DNA

<213> Mus musculus

<220>

<221> CDS

&lt;222&gt; (187).. (1281)

&lt;400&gt; 840

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 accagt atg gct gac cct cgc cag gag ttt gac aca atg gaa gac cat 228  
 Met Ala Asp Pro Arg Gln Glu Phe Asp Thr Met Glu Asp His  
 1 5 10  
 gct gga gat tac act ctg ctc caa gac caa gaa gga gac atg gac cat 276  
 Ala Gly Asp Tyr Thr Leu Leu Gln Asp Gln Glu Gly Asp Met Asp His  
 15 20 25 30  
 ggc tta aaa gcc gaa gaa gca ggc atc gga gac acc ccg aac cag gag 324  
 Gly Leu Lys Ala Glu Glu Ala Gly Ile Gly Asp Thr Pro Asn Gln Glu  
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 Asp Gln Ala Ala Gly His Val Thr Gln Ala Arg Val Ala Ser Lys Asp  
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 agg aca gga aat gac gag aag aaa gcc aag ggc gct gat ggc aaa acc 420  
 Arg Thr Gly Asn Asp Glu Lys Lys Ala Lys Gly Ala Asp Gly Lys Thr  
 65 70 75  
 ggg gcg aag atc gcc aca cct cgg gga gca gcc tct ccg gcc cag aag 468  
 Gly Ala Lys Ile Ala Thr Pro Arg Gly Ala Ala Ser Pro Ala Gln Lys  
 80 85 90  
 ggc acg tcc aac gcc acc agg atc ccg gcc aag acc acg ccc agc cct 516  
 Gly Thr Ser Asn Ala Thr Arg Ile Pro Ala Lys Thr Thr Pro Ser Pro  
 95 100 105 110  
 aag act cct cca ggg tca ggt gaa cca cca aaa tcc gga gaa cga agc 564  
 Lys Thr Pro Pro Gly Ser Gly Glu Pro Pro Lys Ser Gly Glu Arg Ser



|   |      |     |     |
|---|------|-----|-----|
| 115   | 120  | 125 |     |
| ggc tac agc agc ccc ggc tct ccc gga acg cct ggc agt cgc tgc cgc | 612  |     |     |
| Gly Tyr Ser Ser Pro Gly Ser Pro Gly Thr Pro Gly Ser Arg Ser Arg |      |     |     |
| 130   | 135  | 140 |     |
| acc cca tcc cta cca aca ccg ccc acc cgg gag ccc aag aag gtg gca | 660  |     |     |
| Thr Pro Ser Leu Pro Thr Pro Pro Thr Arg Glu Pro Lys Lys Val Ala |      |     |     |
| 145   | 150  | 155 |     |
| gtg gtc cgc act ccc cct aag tca cca tca gct agt aag agc cgc ctg | 708  |     |     |
| Val Val Arg Thr Pro Pro Lys Ser Pro Ser Ala Ser Lys Ser Arg Leu |      |     |     |
| 160   | 165  | 170 |     |
| cag act gcc cct gtg ccc atg cca gac cta aag aat gtc agg tgc aag | 756  |     |     |
| Gln Thr Ala Pro Val Pro Met Pro Asp Leu Lys Asn Val Arg Ser Lys |      |     |     |
| 175   | 180  | 185 | 190 |
| att ggc tct act gag aac ctg aag cac cag cca gga ggt ggc aag gtg | 804  |     |     |
| Ile Gly Ser Thr Glu Asn Leu Lys His Gln Pro Gly Gly Gly Lys Val |      |     |     |
| 195   | 200  | 205 |     |
| caa ata gtc tac aag ccg gtg gac ctg agc aaa gtg acc tcc aag tgt | 852  |     |     |
| Gln Ile Val Tyr Lys Pro Val Asp Leu Ser Lys Val Thr Ser Lys Cys |      |     |     |
| 210   | 215  | 220 |     |
| ggc tgc tta ggg aac atc cat cac aag cca gga ggt ggc cag gtg gaa | 900  |     |     |
| Gly Ser Leu Gly Asn Ile His His Lys Pro Gly Gly Gly Gln Val Glu |      |     |     |
| 225   | 230  | 235 |     |
| gta aaa tca gag aag ctg gac ttc aag gac aga gtc cag tgc aag att | 948  |     |     |
| Val Lys Ser Glu Lys Leu Asp Phe Lys Asp Arg Val Gln Ser Lys Ile |      |     |     |
| 240   | 245  | 250 |     |
| ggc tcc ttg gat aat atc acc cac gtc cct gga gga ggg aat aag aag | 996  |     |     |
| Gly Ser Leu Asp Asn Ile Thr His Val Pro Gly Gly Gly Asn Lys Lys |      |     |     |
| 255   | 260  | 265 | 270 |
| att gaa acc cac aag ctg acc ttc agg gag aat gcc aaa gcc aag aca | 1044 |     |     |

Ile Glu Thr His Lys Leu Thr Phe Arg Glu Asn Ala Lys Ala Lys Thr  
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 gac cat gga gca gaa att gtg tat aag tca ccc gtg gtg tct ggg gac 1092  
 Asp His Gly Ala Glu Ile Val Tyr Lys Ser Pro Val Val Ser Gly Asp  
 290 295 300  
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 Thr Ser Pro Arg His Leu Ser Asn Val Ser Ser Thr Gly Ser Ile Asp  
 305 310 315  
 atg gtg gac tca cca cag ctt gcc aca cta gcc gat gaa gtg tct gct 1188  
 Met Val Asp Ser Pro Gln Leu Ala Thr Leu Ala Asp Glu Val Ser Ala  
 320 325 330  
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 Ser Leu Ala Lys Gln Gly Lys Ala Ala Leu Leu Ser Ser Gln Val Trp  
 335 340 345 350  
 aac tac agc cat gat ttg gcc acc att aca gac ctg gga ctt tag 1281  
 Asn Tyr Ser His Asp Leu Ala Thr Ile Thr Asp Leu Gly Leu  
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<210> 841

<211> 364

<212> PRT

<213> Mus musculus

<400> 841

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| Met | Ala | Asp | Pro | Arg | Gln | Glu | Phe | Asp | Thr | Met | Glu | Asp | His | Ala | Gly |
| 1   |     |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Asp | Tyr | Thr | Leu | Leu | Gln | Asp | Gln | Glu | Gly | Asp | Met | Asp | His | Gly | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Lys | Ala | Glu | Glu | Ala | Gly | Ile | Gly | Asp | Thr | Pro | Asn | Gln | Glu | Asp | Gln |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Ala | Ala | Gly | His | Val | Thr | Gln | Ala | Arg | Val | Ala | Ser | Lys | Asp | Arg | Thr |
|     |     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Gly | Asn | Asp | Glu | Lys | Lys | Ala | Lys | Gly | Ala | Asp | Gly | Lys | Thr | Gly | Ala |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Lys | Ile | Ala | Thr | Pro | Arg | Gly | Ala | Ala | Ser | Pro | Ala | Gln | Lys | Gly | Thr |
|     |     |     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  |     |
| Ser | Asn | Ala | Thr | Arg | Ile | Pro | Ala | Lys | Thr | Thr | Pro | Ser | Pro | Lys | Thr |
|     |     |     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |
| Pro | Pro | Gly | Ser | Gly | Glu | Pro | Pro | Lys | Ser | Gly | Glu | Arg | Ser | Gly | Tyr |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Ser | Ser | Pro | Gly | Ser | Pro | Gly | Thr | Pro | Gly | Ser | Arg | Ser | Arg | Thr | Pro |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |

Ser Leu Pro Thr Pro Pro Thr Arg Glu Pro Lys Lys Val Ala Val Val  
 145 150 155 160  
 Arg Thr Pro Pro Lys Ser Pro Ser Ala Ser Lys Ser Arg Leu Gln Thr  
 165 170 175  
 Ala Pro Val Pro Met Pro Asp Leu Lys Asn Val Arg Ser Lys Ile Gly  
 180 185 190  
 Ser Thr Glu Asn Leu Lys His Gln Pro Gly Gly Gly Lys Val Gln Ile  
 195 200 205  
 Val Tyr Lys Pro Val Asp Leu Ser Lys Val Thr Ser Lys Cys Gly Ser  
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 Leu Gly Asn Ile His His Lys Pro Gly Gly Gly Gln Val Glu Val Lys  
 225 230 235 240  
 Ser Glu Lys Leu Asp Phe Lys Asp Arg Val Gln Ser Lys Ile Gly Ser  
 245 250 255  
 Leu Asp Asn Ile Thr His Val Pro Gly Gly Gly Asn Lys Lys Ile Glu  
 260 265 270  
 Thr His Lys Leu Thr Phe Arg Glu Asn Ala Lys Ala Lys Thr Asp His  
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 Gly Ala Glu Ile Val Tyr Lys Ser Pro Val Val Ser Gly Asp Thr Ser  
 290 295 300  
 Pro Arg His Leu Ser Asn Val Ser Ser Thr Gly Ser Ile Asp Met Val  
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 Asp Ser Pro Gln Leu Ala Thr Leu Ala Asp Glu Val Ser Ala Ser Leu  
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&lt;211&gt; 2152

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

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&lt;400&gt; 842

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Arg Val Phe Val Val Gly Val Gly Met Thr Lys Phe Met Lys Pro Gly
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ggg gag aac tca aga gac tat cct gat atg gca aag gaa gca ggc cag 147
Gly Glu Asn Ser Arg Asp Tyr Pro Asp Met Ala Lys Glu Ala Gly Gln
              30              35              40
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Lys Ala Leu Glu Asp Ala Gln Ile Pro Tyr Ser Ala Val Glu Gln Ala
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tgc gtt ggc tat gtg tat ggt gat tcc acc agt ggg cag agg gct atc 243
Cys Val Gly Tyr Val Tyr Gly Asp Ser Thr Ser Gly Gln Arg Ala Ile
              65              70              75
tat cat agt ttg gga ctg act ggc att cct ata att aat gtc aac aat 291
Tyr His Ser Leu Gly Leu Thr Gly Ile Pro Ile Ile Asn Val Asn Asn
              80              85              90
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 Glu Lys Ser Ile Ile Lys Val Val Gly Tyr Asp Met Ser Lys Glu Ala  
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|  |     |     |      |
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| 400  | 405 | 410 |      |
| tcc ttc agg acg cac cag gtt tca gct gct ccc acc agc tct gca ggg  |     |     | 1299 |
| Ser Phe Arg Thr His Gln Val Ser Ala Ala Pro Thr Ser Ser Ala Gly  |     |     |      |
| 415  | 420 | 425 |      |
| gat gga ttc aag gca aac ctc gtc ttt aag gag att gag aag aag ctt  |     |     | 1347 |
| Asp Gly Phe Lys Ala Asn Leu Val Phe Lys Glu Ile Glu Lys Lys Leu  |     |     |      |
| 430  | 435 | 440 |      |
| gaa gag gaa ggg gaa cag ttc gtg aag aaa atc ggt ggc att ttt gcc  |     |     | 1395 |
| Glu Glu Glu Gly Glu Gln Phe Val Lys Lys Ile Gly Gly Ile Phe Ala  |     |     |      |
| 445  | 450 | 455 | 460  |
| ttc aaa gtg aaa gat ggc cct gga ggc aaa gaa gct acc tgg gtg gtg  |     |     | 1443 |
| Phe Lys Val Lys Asp Gly Pro Gly Gly Lys Glu Ala Thr Trp Val Val  |     |     |      |
| 465  | 470 | 475 |      |
| gat gtg aag aat ggc aaa gga tct gtg ctt ccc aat tca gat aag aag  |     |     | 1491 |
| Asp Val Lys Asn Gly Lys Gly Ser Val Leu Pro Asn Ser Asp Lys Lys  |     |     |      |
| 480  | 485 | 490 |      |
| gct gac tgc aca atc acc atg gcc gac tca gac ttg ctg gct ttg atg  |     |     | 1539 |
| Ala Asp Cys Thr Ile Thr Met Ala Asp Ser Asp Leu Leu Ala Leu Met  |     |     |      |
| 495  | 500 | 505 |      |
| act gga aaa atg aac cct cag tgc gcc ttc ttt caa ggg aaa ctg aag  |     |     | 1587 |
| Thr Gly Lys Met Asn Pro Gln Ser Ala Phe Phe Gln Gly Lys Leu Lys  |     |     |      |
| 510  | 515 | 520 |      |
| att gct ggt aac atg gga ctg gcc atg aaa cta cag aac ctt cag ctt  |     |     | 1635 |
| Ile Ala Gly Asn Met Gly Leu Ala Met Lys Leu Gln Asn Leu Gln Leu  |     |     |      |
| 525  | 530 | 535 | 540  |
| cag ccg ggc aaa gct aag ctg tga ggagtcctt tggcaacctc aggacatcaa  |     |     | 1689 |
| Gln Pro Gly Lys Ala Lys Leu                                      |     |     |      |
| 545  |     |     |      |
| gatgagatgt gtagataggt agagatccac gtctcgtcgt cagggttag actgacacct |     |     | 1749 |



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cccgaaatagc atgagataga tttgttgcta attgggcigt ggtcaattgt gtttccccga 1809
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actgtgcttg atgaagctga ctatgtcaat gatggtttgg ggtaaactt gagtttcaga 1929
ataaaaattca gaactagtaa aatctgaaga ctgagtaaac aaagcccttg ttttgcttag 1989
aagtatattt gaggatcact gtgttggaca ctcggtgtga catttctcct tggggggact 2049
agagaagaaa cagatticca tagttgacca ggaattagt cctcacactc aattacctgc 2109
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<210> 843

<211> 547

<212> PRT

<213> Mus musculus

<400> 843

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      20             25             30
Arg Asp Tyr Pro Asp Met Ala Lys Glu Ala Gly Gln Lys Ala Leu Glu
      35             40             45
Asp Ala Gln Ile Pro Tyr Ser Ala Val Glu Gln Ala Cys Val Gly Tyr
      50             55             60
Val Tyr Gly Asp Ser Thr Ser Gly Gln Arg Ala Ile Tyr His Ser Leu
      65             70             75             80
Gly Leu Thr Gly Ile Pro Ile Ile Asn Val Asn Asn Asn Cys Ser Thr
      85             90             95
Gly Ser Thr Ala Leu Phe Met Ala His Gln Leu Ile Gln Gly Gly Leu
      100            105            110
Ala Asn Cys Val Leu Ala Leu Gly Phe Glu Lys Met Glu Arg Gly Ser

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|   |     |     |
|---|-----|-----|
| 115   | 120 | 125 |
| Ile Gly Thr Lys Phe Ser Asp Arg Thr Thr Pro Thr Asp Lys His Ile |     |     |
| 130   | 135 | 140 |
| Glu Val Leu Ile Asp Lys Tyr Gly Leu Ser Ala His Pro Ile Thr Pro |     |     |
| 145   | 150 | 155 |
| Gln Met Phe Gly Tyr Ala Gly Lys Glu His Met Glu Lys Tyr Gly Thr |     | 160 |
| 165   | 170 | 175 |
| Lys Val Glu His Phe Ala Lys Ile Gly Trp Lys Asn His Lys His Ser |     |     |
| 180   | 185 | 190 |
| Val Asn Asn Thr Tyr Ser Gln Phe Gln Asp Glu Tyr Ser Leu Glu Glu |     |     |
| 195   | 200 | 205 |
| Val Met Lys Ser Lys Pro Val Phe Asp Phe Leu Thr Ile Leu Gln Cys |     |     |
| 210   | 215 | 220 |
| Cys Pro Thr Ser Asp Gly Ala Cys Ala Ala Ile Leu Ser Ser Glu Glu |     |     |
| 225   | 230 | 235 |
| Phe Val Gln Gln Tyr Gly Leu Gln Ser Lys Ala Val Glu Ile Val Ala |     | 240 |
| 245   | 250 | 255 |
| Gln Glu Met Met Thr Asp Leu Pro Ser Thr Phe Glu Glu Lys Ser Ile |     |     |
| 260   | 265 | 270 |
| Ile Lys Val Val Gly Tyr Asp Met Ser Lys Glu Ala Ala Arg Arg Cys |     |     |
| 275   | 280 | 285 |
| Tyr Glu Lys Ser Gly Leu Thr Pro Asn Asp Val Asp Val Ile Glu Leu |     |     |
| 290   | 295 | 300 |
| His Asp Cys Phe Ser Val Asn Glu Leu Ile Thr Tyr Glu Ala Leu Gly |     |     |
| 305   | 310 | 315 |
| Leu Cys Pro Glu Gly Gln Gly Gly Thr Leu Val Asp Arg Gly Asp Asn |     | 320 |
| 325   | 330 | 335 |
| Thr Tyr Gly Gly Lys Trp Val Ile Asn Pro Ser Gly Gly Leu Ile Ser |     |     |
| 340   | 345 | 350 |

Lys Gly His Pro Leu Gly Ala Thr Gly Leu Ala Gln Cys Ala Glu Leu  
 355 360 365  
 Cys Trp Gln Leu Arg Gly Glu Ala Gly Lys Arg Gln Val Pro Gly Ala  
 370 375 380  
 Lys Val Ala Leu Gln His Asn Leu Gly Leu Gly Gly Ala Val Val Val  
 385 390 395 400  
 Thr Leu Tyr Arg Met Gly Phe Pro Glu Ala Ala Ser Ser Phe Arg Thr  
 405 410 415  
 His Gln Val Ser Ala Ala Pro Thr Ser Ser Ala Gly Asp Gly Phe Lys  
 420 425 430  
 Ala Asn Leu Val Phe Lys Glu Ile Glu Lys Lys Leu Glu Glu Glu Gly  
 435 440 445  
 Glu Gln Phe Val Lys Lys Ile Gly Gly Ile Phe Ala Phe Lys Val Lys  
 450 455 460  
 Asp Gly Pro Gly Gly Lys Glu Ala Thr Trp Val Val Asp Val Lys Asn  
 465 470 475 480  
 Gly Lys Gly Ser Val Leu Pro Asn Ser Asp Lys Lys Ala Asp Cys Thr  
 485 490 495  
 Ile Thr Met Ala Asp Ser Asp Leu Leu Ala Leu Met Thr Gly Lys Met  
 500 505 510  
 Asn Pro Gln Ser Ala Phe Phe Gln Gly Lys Leu Lys Ile Ala Gly Asn  
 515 520 525  
 Met Gly Leu Ala Met Lys Leu Gln Asn Leu Gln Leu Gln Pro Gly Lys  
 530 535 540  
 Ala Lys Leu  
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&lt;210&gt; 844

&lt;211&gt; 736

<212> DNA

<213> Mus musculus

<400> 844

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gtggcggaac gacattcata tctatcgttg agtttaacta ctctggagac cttcttgcaa 180
caggagacaa aggtggcaga gtgtttatit tccagcggga acaagagaat aaaggccgcg 240
ctcactctag gggagagtac aatgtttaca gtacctttca gattcatgag ccagagtttg 300
actatttgaa aagtctagaa attgaagaaa aaattaataa aatcaggtag ttaccgcaac 360
agaatgctgc tcatittcta ctctctacaa atgataaaac tattaaatta tggaaaataa 420
gtgaacggga taaaagagca gaagggtata acttgaaaga tgaagatgga cgacttcgag 480
acccatttag aattacggca ctacgggttc caatatigaa gcccatggac ctttatggta 540
gagcaagttc acgacgaatt gttagcatg ctcatacata tcacatagat tcgattcagt 600
aaatagtgat tcatgaacat atctctctgc agatgatctg agatttagct atgggcatta 660
gaatcacaga tagagcttca catttgtgac atcagcgagc tatagtgaga ctgacagagc 720
atcactgcgc gatttc

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736

<210> 845

<211> 802

<212> DNA

<213> Mus musculus

<400> 845

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gacagattcc aatctacatc tacagacaca ttctggatac cgagtagaac ttgatttccc 180
tcctcaact gtctttcctc agctccttcc tctaattttt gacttccaca tcttttttac 240
catgttagtc tgactataga aaacaccctg tggatgaaggc caggcagctt atcaggagac 300

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acctatgcac cagagtaata caggagtgat tctgcccaacc aggatacgca gcatttcate 360  
 attgtgaact atagaacatc aactctgcaa atggtggata tttcttccaa gaccacagcc 420  
 ttgactggga agaatatcaa tgtggggggg gggggccagg aacagaagag cccacaatat 480  
 cggggaaagc taagttagcc agggatatgaa tatgagcacc tgaacaaaaa cctggagcta 540  
 aaattcaaaa gaataccgac cagagaaata ccatcttgct tiggcagcct ggtgggagga 600  
 ccttgagaag caagggtga gaactgggtc tgctccccta tgttccacac ctctgtgccc 660  
 ttcatacccc tgccctctcat tttctcctac cttatttctc tgagaaccaa tgttggtttt 720  
 tcccccaaa aaattactac ttggtggtct accagacaca aacaagctag gtgctaatta 780  
 ataatacaag tttctctgtg ca 802

<210> 846

<211> 3524

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (256).. (2274)

<400> 846

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 cgagccagag agccggagag agccagagag agcggctcgg ctcccagctc cgagtagcgc 120  
 agccgcccgg ctctccccgg caccgcccgc accaccgcac ctcatcagca ccgccacctc 180  
 gccgccgccc ccgcccaccc cggccctccc cggctgtgtc tcccggcgcg aggcaagagg 240  
 tggttggggg gaacc atg gct gac gtt tac ccg gcc aac gac tcc acg gcg 291

Met Ala Asp Val Tyr Pro Ala Asn Asp Ser Thr Ala

1

5

10

tct cag gac gtg gcc aac cgc ttc gcc cgc aaa ggg gcg ctg agg cag 339  
 Ser Gln Asp Val Ala Asn Arg Phe Ala Arg Lys Gly Ala Leu Arg Gln

|   |     |     |     |
|---|-----|-----|-----|
| 15  | 20  | 25  |     |
| aag aac gtg cat gag gtg aaa gac cac aaa ttc atc gcc cgc ttc ttc |     |     | 387 |
| Lys Asn Val His Glu Val Lys Asp His Lys Phe Ile Ala Arg Phe Phe |     |     |     |
| 30  | 35  | 40  |     |
| aag caa ccc acc ttc tgc agc cac tgc acc gac ttc atc tgg ggg ttt |     |     | 435 |
| Lys Gln Pro Thr Phe Cys Ser His Cys Thr Asp Phe Ile Trp Gly Phe |     |     |     |
| 45  | 50  | 55  | 60  |
| ggg aaa caa ggc ttc cag tgc caa gtt tgc tgt ttt gtg gtt cat aag |     |     | 483 |
| Gly Lys Gln Gly Phe Gln Cys Gln Val Cys Cys Phe Val Val His Lys |     |     |     |
| 65  | 70  | 75  |     |
| agg tgc cat gag ttc gtt acg ttc tct tgt ccg ggt gcg gat aag gga |     |     | 531 |
| Arg Cys His Glu Phe Val Thr Phe Ser Cys Pro Gly Ala Asp Lys Gly |     |     |     |
| 80  | 85  | 90  |     |
| cct gac act gac gac ccc agg agc aag cac aag ttc aaa atc cac aca |     |     | 579 |
| Pro Asp Thr Asp Asp Pro Arg Ser Lys His Lys Phe Lys Ile His Thr |     |     |     |
| 95  | 100 | 105 |     |
| tac gga agc cct acc ttc tgt gat cac tgt ggg tcc ctg ctc tat gga |     |     | 627 |
| Tyr Gly Ser Pro Thr Phe Cys Asp His Cys Gly Ser Leu Leu Tyr Gly |     |     |     |
| 110   | 115 | 120 |     |
| ctt atc cac caa ggg atg aaa tgt gac acc tgc gac atg aat gtt cac |     |     | 675 |
| Leu Ile His Gln Gly Met Lys Cys Asp Thr Cys Asp Met Asn Val His |     |     |     |
| 125   | 130 | 135 | 140 |
| aac cag tgt gtg atc aat gac cct agc ctc tgc gga atg gat cac aca |     |     | 723 |
| Asn Gln Cys Val Ile Asn Asp Pro Ser Leu Cys Gly Met Asp His Thr |     |     |     |
| 145   | 150 | 155 |     |
| gag aag agg ggg cgg att tat ctg aag gct gag gtc act gat gaa aag |     |     | 771 |
| Glu Lys Arg Gly Arg Ile Tyr Leu Lys Ala Glu Val Thr Asp Glu Lys |     |     |     |
| 160   | 165 | 170 |     |
| ctc cac gtc acg gta cga gat gca aaa aat cta atc cct atg gat cca |     |     | 819 |

Leu His Val Thr Val Arg Asp Ala Lys Asn Leu Ile Pro Met Asp Pro  
 175 180 185  
 aat ggg ctt tcg gat cct tat gtg aag ctg aaa cta atc cct gac ccc 867  
 Asn Gly Leu Ser Asp Pro Tyr Val Lys Leu Lys Leu Ile Pro Asp Pro  
 190 195 200  
 aag aat gag agc aaa cag aaa acc aaa acc atc cgc tcc aac ctg aat 915  
 Lys Asn Glu Ser Lys Gln Lys Thr Lys Thr Ile Arg Ser Asn Leu Asn  
 205 210 215 220  
 cct cag tgg aat gag tcc ttc acg ttc aaa tta aaa cct tca gac aaa 963  
 Pro Gln Trp Asn Glu Ser Phe Thr Phe Lys Leu Lys Pro Ser Asp Lys  
 225 230 235  
 gac cgg cga ctg tct gta gaa atc tgg gac tgg gat cgg acg act cgg 1011  
 Asp Arg Arg Leu Ser Val Glu Ile Trp Asp Trp Asp Arg Thr Thr Arg  
 240 245 250  
 aat gac ttc atg gga tcc ctt tcc ttt ggt gtc tca gag cta atg aag 1059  
 Asn Asp Phe Met Gly Ser Leu Ser Phe Gly Val Ser Glu Leu Met Lys  
 255 260 265  
 atg ccg gcc agt gga tgg tat aaa gct cac aac caa gaa gag ggc gaa 1107  
 Met Pro Ala Ser Gly Trp Tyr Lys Ala His Asn Gln Glu Glu Gly Glu  
 270 275 280  
 tat tac aac gtg ccc att cca gaa gga gat gaa gaa ggc aac atg gaa 1155  
 Tyr Tyr Asn Val Pro Ile Pro Glu Gly Asp Glu Glu Gly Asn Met Glu  
 285 290 295 300  
 ctc agg cag aag ttt gag aaa gcc aag cta ggt cct gtt ggt aac aaa 1203  
 Leu Arg Gln Lys Phe Glu Lys Ala Lys Leu Gly Pro Val Gly Asn Lys  
 305 310 315  
 gtc atc agc cct tca gaa gac aga aag caa cca tcc aac aac ctg gac 1251  
 Val Ile Ser Pro Ser Glu Asp Arg Lys Gln Pro Ser Asn Asn Leu Asp  
 320 325 330

aga gtg aaa ctc aca gac ttc aac ttc ctc atg gtg ctg ggg aag ggg 1299  
 Arg Val Lys Leu Thr Asp Phe Asn Phe Leu Met Val Leu Gly Lys Gly  
 335 340 345  
 agt ttt ggg aag gtg atg ctt gct gac agg aag gga acg gag gaa ctg 1347  
 Ser Phe Gly Lys Val Met Leu Ala Asp Arg Lys Gly Thr Glu Glu Leu  
 350 355 360  
 tac gcc atc aag atc ctg aag aag gac gtg gtg atc cag gac gac gac 1395  
 Tyr Ala Ile Lys Ile Leu Lys Lys Asp Val Val Ile Gln Asp Asp Asp  
 365 370 375 380  
 gtg gag tgc acc atg gtg gag aag cgc gtg ctg gcc ctg ctg gac aag 1443  
 Val Glu Cys Thr Met Val Glu Lys Arg Val Leu Ala Leu Leu Asp Lys  
 385 390 395  
 ccg cca ttt ctg aca cag ctg cac tcc tgc ttc cag aca gtg gac cgg 1491  
 Pro Pro Phe Leu Thr Gln Leu His Ser Cys Phe Gln Thr Val Asp Arg  
 400 405 410  
 ctg tac ttc gtc atg gaa tac gtc aac ggc ggg gat ctt atg tac cac 1539  
 Leu Tyr Phe Val Met Glu Tyr Val Asn Gly Gly Asp Leu Met Tyr His  
 415 420 425  
 att cag caa gtc ggg aaa ttt aag gag cca caa gca gta ttc tac gca 1587  
 Ile Gln Gln Val Gly Lys Phe Lys Glu Pro Gln Ala Val Phe Tyr Ala  
 430 435 440  
 gcc gag atc tcc atc gga ctg ttc ttc ctt cat aaa aga ggg atc att 1635  
 Ala Glu Ile Ser Ile Gly Leu Phe Phe Leu His Lys Arg Gly Ile Ile  
 445 450 455 460  
 tac agg gat ctg aag ctg aac aat gtc atg ctg aac tca gaa ggg cac 1683  
 Tyr Arg Asp Leu Lys Leu Asn Asn Val Met Leu Asn Ser Glu Gly His  
 465 470 475  
 atc aaa atc gcc gac ttc ggg atg tgc aag gaa cac atg atg gat gga 1731  
 Ile Lys Ile Ala Asp Phe Gly Met Cys Lys Glu His Met Met Asp Gly



|   |      |     |     |
|---|------|-----|-----|
| 480   | 485  | 490 |     |
| gtc acg acc agg acc ttc tgc gga act ccg gac tac att gcc cca gag | 1779 |     |     |
| Val Thr Thr Arg Thr Phe Cys Gly Thr Pro Asp Tyr Ile Ala Pro Glu |      |     |     |
| 495   | 500  | 505 |     |
| ata atc gct tac cag ccg tac ggg aag tct gta gat tgg tgg gcg tac | 1827 |     |     |
| Ile Ile Ala Tyr Gln Pro Tyr Gly Lys Ser Val Asp Trp Trp Ala Tyr |      |     |     |
| 510   | 515  | 520 |     |
| ggg gtg ctg ctg tac gag atg cta gcc ggg cag cct ccg ttt gat ggt | 1875 |     |     |
| Gly Val Leu Leu Tyr Glu Met Leu Ala Gly Gln Pro Pro Phe Asp Gly |      |     |     |
| 525   | 530  | 535 | 540 |
| gaa gat gaa gat gaa ctg ttt cag tct ata atg gag cac aac gtg tcc | 1923 |     |     |
| Glu Asp Glu Asp Glu Leu Phe Gln Ser Ile Met Glu His Asn Val Ser |      |     |     |
| 545   | 550  | 555 |     |
| tac ccc aaa tcc ttg tcc aag gaa gcc gtc tcc atc tgc aaa gga ctt | 1971 |     |     |
| Tyr Pro Lys Ser Leu Ser Lys Glu Ala Val Ser Ile Cys Lys Gly Leu |      |     |     |
| 560   | 565  | 570 |     |
| atg acc aaa cag cct gcc aag cga ctg ggc tgc ggg ccc gag gga gag | 2019 |     |     |
| Met Thr Lys Gln Pro Ala Lys Arg Leu Gly Cys Gly Pro Glu Gly Glu |      |     |     |
| 575   | 580  | 585 |     |
| agg gat gtc aga gag cat gcc ttc ttc agg agg atc gac tgg gag aaa | 2067 |     |     |
| Arg Asp Val Arg Glu His Ala Phe Phe Arg Arg Ile Asp Trp Glu Lys |      |     |     |
| 590   | 595  | 600 |     |
| ctg gag aac agg gag atc caa cca cca ttc aag ccc aaa gtg tgt ggc | 2115 |     |     |
| Leu Glu Asn Arg Glu Ile Gln Pro Pro Phe Lys Pro Lys Val Cys Gly |      |     |     |
| 605   | 610  | 615 | 620 |
| aaa gga gca gaa aac ttt gac aag ttc ttc acg cga gga cag cct gtc | 2163 |     |     |
| Lys Gly Ala Glu Asn Phe Asp Lys Phe Phe Thr Arg Gly Gln Pro Val |      |     |     |
| 625   | 630  | 635 |     |
| tta aca cca cca gat cag ctg gtc att gct aac ata gac caa tct gat | 2211 |     |     |

Leu Thr Pro Pro Asp Gln Leu Val Ile Ala Asn Ile Asp Gln Ser Asp  
 640 645 650  
 ttt gaa ggg ttc tcg tat gtc aac ccc cag ttt gtg cac cca atc ttg 2259  
 Phe Glu Gly Phe Ser Tyr Val Asn Pro Gln Phe Val His Pro Ile Leu  
 655 660 665  
 caa agt gca gta tga actcaaaaat gaaagatcaa atgcctcccc agccccgca 2314  
 Gln Ser Ala Val  
 670  
 tccccatcag tgggaagtga tccttaacca taaaaattta aggctatggc ttigtatttt 2374  
 gtccacaca gaggcctgga aatttttaggg acattagtaa tacattatca acttttttcc 2434  
 tcacccccca accaaaagca ttatcttagt ggaigatgac ataaagtaca gagtatagtt 2494  
 taattatgta gaagtcatgt cgggtacaa gttgattcct cctaaaaatc aaagagactt 2554  
 ggaccctatt ttttggtacg attgatata ttctccatac ttccatttc ttggattttc 2614  
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 aaagagcata gtttgggttc ccattctcag ttcttattga acggcacatg tggaactgta 3394  
 ggatcaagat actttatgct gacatcaact ctttgatgtt gtcttgctag aaggatttta 3454  
 atatgttttg cgagtgcac atgcaatgga ttttgcatgt ttataataaa ccttaataac 3514  
 gagttaagtg 3524

&lt;210&gt; 847

&lt;211&gt; 672

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 847

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Met Ala Asp Val Tyr Pro Ala Asn Asp Ser Thr Ala Ser Gln Asp Val
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Ala Asn Arg Phe Ala Arg Lys Gly Ala Leu Arg Gln Lys Asn Val His
      20             25             30
Glu Val Lys Asp His Lys Phe Ile Ala Arg Phe Phe Lys Gln Pro Thr
      35             40             45
Phe Cys Ser His Cys Thr Asp Phe Ile Trp Gly Phe Gly Lys Gln Gly
      50             55             60
Phe Gln Cys Gln Val Cys Cys Phe Val Val His Lys Arg Cys His Glu
      65             70             75             80
Phe Val Thr Phe Ser Cys Pro Gly Ala Asp Lys Gly Pro Asp Thr Asp
      85             90             95
Asp Pro Arg Ser Lys His Lys Phe Lys Ile His Thr Tyr Gly Ser Pro
      100            105            110
Thr Phe Cys Asp His Cys Gly Ser Leu Leu Tyr Gly Leu Ile His Gln
      115            120            125
Gly Met Lys Cys Asp Thr Cys Asp Met Asn Val His Asn Gln Cys Val
      130            135            140
Ile Asn Asp Pro Ser Leu Cys Gly Met Asp His Thr Glu Lys Arg Gly
      145            150            155            160
Arg Ile Tyr Leu Lys Ala Glu Val Thr Asp Glu Lys Leu His Val Thr
      165            170            175

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Val Arg Asp Ala Lys Asn Leu Ile Pro Met Asp Pro Asn Gly Leu Ser  
 180 185 190  
 Asp Pro Tyr Val Lys Leu Lys Leu Ile Pro Asp Pro Lys Asn Glu Ser  
 195 200 205  
 Lys Gln Lys Thr Lys Thr Ile Arg Ser Asn Leu Asn Pro Gln Trp Asn  
 210 215 220  
 Glu Ser Phe Thr Phe Lys Leu Lys Pro Ser Asp Lys Asp Arg Arg Leu  
 225 230 235 240  
 Ser Val Glu Ile Trp Asp Trp Asp Arg Thr Thr Arg Asn Asp Phe Met  
 245 250 255  
 Gly Ser Leu Ser Phe Gly Val Ser Glu Leu Met Lys Met Pro Ala Ser  
 260 265 270  
 Gly Trp Tyr Lys Ala His Asn Gln Glu Glu Gly Glu Tyr Tyr Asn Val  
 275 280 285  
 Pro Ile Pro Glu Gly Asp Glu Glu Gly Asn Met Glu Leu Arg Gln Lys  
 290 295 300  
 Phe Glu Lys Ala Lys Leu Gly Pro Val Gly Asn Lys Val Ile Ser Pro  
 305 310 315 320  
 Ser Glu Asp Arg Lys Gln Pro Ser Asn Asn Leu Asp Arg Val Lys Leu  
 325 330 335  
 Thr Asp Phe Asn Phe Leu Met Val Leu Gly Lys Gly Ser Phe Gly Lys  
 340 345 350  
 Val Met Leu Ala Asp Arg Lys Gly Thr Glu Glu Leu Tyr Ala Ile Lys  
 355 360 365  
 Ile Leu Lys Lys Asp Val Val Ile Gln Asp Asp Asp Val Glu Cys Thr  
 370 375 380  
 Met Val Glu Lys Arg Val Leu Ala Leu Leu Asp Lys Pro Pro Phe Leu  
 385 390 395 400  
 Thr Gln Leu His Ser Cys Phe Gln Thr Val Asp Arg Leu Tyr Phe Val

|   |     |     |     |
|---|-----|-----|-----|
|   | 405 | 410 | 415 |
| Met Glu Tyr Val Asn Gly Gly Asp Leu Met Tyr His Ile Gln Gln Val |     |     |     |
|   | 420 | 425 | 430 |
| Gly Lys Phe Lys Glu Pro Gln Ala Val Phe Tyr Ala Ala Glu Ile Ser |     |     |     |
|   | 435 | 440 | 445 |
| Ile Gly Leu Phe Phe Leu His Lys Arg Gly Ile Ile Tyr Arg Asp Leu |     |     |     |
|   | 450 | 455 | 460 |
| Lys Leu Asn Asn Val Met Leu Asn Ser Glu Gly His Ile Lys Ile Ala |     |     |     |
| 465   | 470 | 475 | 480 |
| Asp Phe Gly Met Cys Lys Glu His Met Met Asp Gly Val Thr Thr Arg |     |     |     |
|   | 485 | 490 | 495 |
| Thr Phe Cys Gly Thr Pro Asp Tyr Ile Ala Pro Glu Ile Ile Ala Tyr |     |     |     |
|   | 500 | 505 | 510 |
| Gln Pro Tyr Gly Lys Ser Val Asp Trp Trp Ala Tyr Gly Val Leu Leu |     |     |     |
|   | 515 | 520 | 525 |
| Tyr Glu Met Leu Ala Gly Gln Pro Pro Phe Asp Gly Glu Asp Glu Asp |     |     |     |
| 530   | 535 | 540 |     |
| Glu Leu Phe Gln Ser Ile Met Glu His Asn Val Ser Tyr Pro Lys Ser |     |     |     |
| 545   | 550 | 555 | 560 |
| Leu Ser Lys Glu Ala Val Ser Ile Cys Lys Gly Leu Met Thr Lys Gln |     |     |     |
|   | 565 | 570 | 575 |
| Pro Ala Lys Arg Leu Gly Cys Gly Pro Glu Gly Glu Arg Asp Val Arg |     |     |     |
|   | 580 | 585 | 590 |
| Glu His Ala Phe Phe Arg Arg Ile Asp Trp Glu Lys Leu Glu Asn Arg |     |     |     |
|   | 595 | 600 | 605 |
| Glu Ile Gln Pro Pro Phe Lys Pro Lys Val Cys Gly Lys Gly Ala Glu |     |     |     |
|   | 610 | 615 | 620 |
| Asn Phe Asp Lys Phe Phe Thr Arg Gly Gln Pro Val Leu Thr Pro Pro |     |     |     |
| 625   | 630 | 635 | 640 |

2058/2644

|   |     |     |     |  |
|---|-----|-----|-----|--|
| 55  | 60  | 65  | 70  |  |
| tgt acc atc cct gag atc tgg acc tgg ctt cgg aat tct ctg cgg ccc | 294 |     |     |  |
| Cys Thr Ile Pro Glu Ile Trp Thr Trp Leu Arg Asn Ser Leu Arg Pro |     |     |     |  |
| 75  | 80  | 85  |     |  |
| agc ccc tcg ttc acc cat ttc ctg ctg aca cat gga tac tgg ctc tgg | 342 |     |     |  |
| Ser Pro Ser Phe Thr His Phe Leu Leu Thr His Gly Tyr Trp Leu Trp |     |     |     |  |
| 90  | 95  | 100 |     |  |
| gaa ttt gtg aat gcc acc ttc atc cga gaa gta ctc atg cgc ctg gta | 390 |     |     |  |
| Glu Phe Val Asn Ala Thr Phe Ile Arg Glu Val Leu Met Arg Leu Val |     |     |     |  |
| 105   | 110 | 115 |     |  |
| ctc aca gtg cgg tcc aac ctt atc ccc agc cct ccg acc tac aac tca | 438 |     |     |  |
| Leu Thr Val Arg Ser Asn Leu Ile Pro Ser Pro Pro Thr Tyr Asn Ser |     |     |     |  |
| 120   | 125 | 130 |     |  |
| gcg cat gac tac atc agc tgg gag tcc ttc tcc aat gtg agc tac tat | 486 |     |     |  |
| Ala His Asp Tyr Ile Ser Trp Glu Ser Phe Ser Asn Val Ser Tyr Tyr |     |     |     |  |
| 135   | 140 | 145 | 150 |  |
| act cgc att ctg ccc tct gta ccc aaa gac tgc ccc aca ccc atg ggg | 534 |     |     |  |
| Thr Arg Ile Leu Pro Ser Val Pro Lys Asp Cys Pro Thr Pro Met Gly |     |     |     |  |
| 155   | 160 | 165 |     |  |
| acc aaa ggg aag aaa cag tta cca gat gtt cag ctt ctg gcc caa cag | 582 |     |     |  |
| Thr Lys Gly Lys Lys Gln Leu Pro Asp Val Gln Leu Leu Ala Gln Gln |     |     |     |  |
| 170   | 175 | 180 |     |  |
| ctg ctg ctg aga agg gag ttc att cct gcc ccc cag ggc acc aac atc | 630 |     |     |  |
| Leu Leu Leu Arg Arg Glu Phe Ile Pro Ala Pro Gln Gly Thr Asn Ile |     |     |     |  |
| 185   | 190 | 195 |     |  |
| ctg ttt gcc ttc ttt gca caa cac ttc acc cac cag ttc ttc aag acc | 678 |     |     |  |
| Leu Phe Ala Phe Phe Ala Gln His Phe Thr His Gln Phe Phe Lys Thr |     |     |     |  |
| 200   | 205 | 210 |     |  |
| tct gga aag atg ggt cct ggc ttt acc aag gcc tta ggc cac ggg gta | 726 |     |     |  |





|  |      |
|--|------|
| tat cga aac cgc atc gcc atg gaa ttt aac cat ctc tat cac tgg cat  | 1206 |
| Tyr Arg Asn Arg Ile Ala Met Glu Phe Asn His Leu Tyr His Trp His  |      |
| 375                                      380                                      385                                      390 |      |
| cca ctc atg ccc aac tcc ttc caa gtg ggc tca caa gag tac agc tac  | 1254 |
| Pro Leu Met Pro Asn Ser Phe Gln Val Gly Ser Gln Glu Tyr Ser Tyr  |      |
| 395                                      400                                      405  |      |
| gag cag ttt tta ttt aac act tct atg ctg gtg gac tat ggg gtt gag  | 1302 |
| Glu Gln Phe Leu Phe Asn Thr Ser Met Leu Val Asp Tyr Gly Val Glu  |      |
| 410                                      415                                      420  |      |
| gca ctg gtg gat gcc ttc tct cgc cag agg gct ggc cgg att ggt gga  | 1350 |
| Ala Leu Val Asp Ala Phe Ser Arg Gln Arg Ala Gly Arg Ile Gly Gly  |      |
| 425                                      430                                      435  |      |
| ggt agg aac ttt gac tat cat gtt ctg cat gtg gct gtg gat gtc atc  | 1398 |
| Gly Arg Asn Phe Asp Tyr His Val Leu His Val Ala Val Asp Val Ile  |      |
| 440                                      445                                      450  |      |
| aag gag tcc cga gag atg cgc cta cag ccc ttc aat gaa tac cga aag  | 1446 |
| Lys Glu Ser Arg Glu Met Arg Leu Gln Pro Phe Asn Glu Tyr Arg Lys  |      |
| 455                                      460                                      465                                      470 |      |
| agg ttt ggc ttg aag cct tac acc tct ttc cag gag ctc aca gga gag  | 1494 |
| Arg Phe Gly Leu Lys Pro Tyr Thr Ser Phe Gln Glu Leu Thr Gly Glu  |      |
| 475                                      480                                      485  |      |
| aag gag atg gct gct gag ttg gag gag ctg tac ggt gac atc gat gct  | 1542 |
| Lys Glu Met Ala Ala Glu Leu Glu Glu Leu Tyr Gly Asp Ile Asp Ala  |      |
| 490                                      495                                      500  |      |
| tta gag ttc tac ccg ggg ttg ctg ctg gag aag tgc cag ccc aac tcc  | 1590 |
| Leu Glu Phe Tyr Pro Gly Leu Leu Leu Glu Lys Cys Gln Pro Asn Ser  |      |
| 505                                      510                                      515  |      |
| atc ttt gga gaa agt atg ata gag atg ggg gct ccc ttt tcc ctc aag  | 1638 |
| Ile Phe Gly Glu Ser Met Ile Glu Met Gly Ala Pro Phe Ser Leu Lys  |      |

520 525 530  
 ggc ctc cta ggg aat ccc atc tgt tcc cca gag tac tgg aaa ccc agc 1686  
 Gly Leu Leu Gly Asn Pro Ile Cys Ser Pro Glu Tyr Trp Lys Pro Ser  
 535 540 545 550  
 acg ttc ggt ggt gac gtg ggc ttc aac ctt gtc aac aca gcc tca ctg 1734  
 Thr Phe Gly Gly Asp Val Gly Phe Asn Leu Val Asn Thr Ala Ser Leu  
 555 560 565  
 aag aaa ctg gtc tgc ctc aac acc aag acc tgc ccc tat gtt tcc ttc 1782  
 Lys Lys Leu Val Cys Leu Asn Thr Lys Thr Cys Pro Tyr Val Ser Phe  
 570 575 580  
 cgt gtg cca gat tac cct gga gat gac ggg tct gtc tta gtg aga cgc 1830  
 Arg Val Pro Asp Tyr Pro Gly Asp Asp Gly Ser Val Leu Val Arg Arg  
 585 590 595  
 tcc act gag ctc tga gggagctgga aagcagcctc tggagggagg agttttgttc 1885  
 Ser Thr Glu Leu  
 600  
 ctgatgaaga caagtccttg atgtgggttt tegtggcttg gcattgtgag agctgatgct 1945  
 cacatttgaa actttgggtc ttacccttgc ctagaaaatt gtgattttgc cactttcggga 2005  
 tgttgaattc tttgttaact aagaaagtta gaagtgggtt tgtctgccic ctcagaactt 2065  
 ggctctttgt tggcaactca gaaagtcaga ttictgggtt atttgggaata taggcttaaa 2125  
 actttatatt atagggtagg gtgtgggttc acacacctta atcccagcac ttggaaggca 2185  
 gaggcagttg gatctctggg agtttgaggc cagtttggcc tatatagtga gttctaggcc 2245  
 agccatggat gcatagttag actctttctc aaaacaaaca aacaaacaaa caaacaacaa 2305  
 acttttagaa tgtagaattc cgtaaaaaaa aaaaatccct tgaaagttaa tggggtcctc 2365  
 aattttcttc ctagaatttg gaggcctctt cagaatgttg actatctgac aggtgactca 2425  
 gaaggtcctg ttcttggtca atgatctata acatgggcca aaacattccc aacttgaatg 2485  
 tctagaatgt ggaattgggt cattttctg ttcagtgaat tggacacaga acaaaagaac 2545  
 ccagtgcca gcaagaattg ccttgcccaa acctacgtct acgccaagg tcaaggcagt 2605  
 aagggtttct tgggagccac acttagactc tticcaaaga tgtggaggga acagatggac 2665

tcatctaiga tcttggttgg aaaccaccac agttctatcc ccatccagat ctttgcttgt 2725  
 ggcagctggtt tctcatgaag ctaataaaaat tc 2757

<210> 849

<211> 602

<212> PRT

<213> Mus musculus

<400> 849

Met Ser Arg Arg Ser Leu Ser Leu Trp Phe Pro Leu Leu Leu Leu Leu  
 1 5 10 15  
 Leu Leu Pro Pro Thr Pro Ser Val Leu Leu Ala Asp Pro Gly Val Pro  
 20 25 30  
 Ser Pro Val Asn Pro Cys Cys Tyr Tyr Pro Cys Gln Asn Gln Gly Val  
 35 40 45  
 Cys Val Arg Phe Gly Leu Asp Asn Tyr Gln Cys Asp Cys Thr Arg Thr  
 50 55 60  
 Gly Tyr Ser Gly Pro Asn Cys Thr Ile Pro Glu Ile Trp Thr Trp Leu  
 65 70 75 80  
 Arg Asn Ser Leu Arg Pro Ser Pro Ser Phe Thr His Phe Leu Leu Thr  
 85 90 95  
 His Gly Tyr Trp Leu Trp Glu Phe Val Asn Ala Thr Phe Ile Arg Glu  
 100 105 110  
 Val Leu Met Arg Leu Val Leu Thr Val Arg Ser Asn Leu Ile Pro Ser  
 115 120 125  
 Pro Pro Thr Tyr Asn Ser Ala His Asp Tyr Ile Ser Trp Glu Ser Phe  
 130 135 140  
 Ser Asn Val Ser Tyr Tyr Thr Arg Ile Leu Pro Ser Val Pro Lys Asp  
 145 150 155 160

Cys Pro Thr Pro Met Gly Thr Lys Gly Lys Lys Gln Leu Pro Asp Val  
 165 170 175  
 Gln Leu Leu Ala Gln Gln Leu Leu Leu Arg Arg Glu Phe Ile Pro Ala  
 180 185 190  
 Pro Gln Gly Thr Asn Ile Leu Phe Ala Phe Phe Ala Gln His Phe Thr  
 195 200 205  
 His Gln Phe Phe Lys Thr Ser Gly Lys Met Gly Pro Gly Phe Thr Lys  
 210 215 220  
 Ala Leu Gly His Gly Val Asp Leu Gly His Ile Tyr Gly Asp Asn Leu  
 225 230 235 240  
 Glu Arg Gln Tyr His Leu Arg Leu Phe Lys Asp Gly Lys Leu Lys Tyr  
 245 250 255  
 Gln Val Leu Asp Gly Glu Val Tyr Pro Pro Ser Val Glu Gln Ala Ser  
 260 265 270  
 Val Leu Met Arg Tyr Pro Pro Gly Val Pro Pro Glu Arg Gln Met Ala  
 275 280 285  
 Val Gly Gln Glu Val Phe Gly Leu Leu Pro Gly Leu Met Leu Phe Ser  
 290 295 300  
 Thr Ile Trp Leu Arg Glu His Asn Arg Val Cys Asp Leu Leu Lys Glu  
 305 310 315 320  
 Glu His Pro Thr Trp Asp Asp Glu Gln Leu Phe Gln Thr Thr Arg Leu  
 325 330 335  
 Ile Leu Ile Gly Glu Thr Ile Lys Ile Val Ile Glu Glu Tyr Val Gln  
 340 345 350  
 His Leu Ser Gly Tyr Phe Leu Gln Leu Lys Phe Asp Pro Glu Leu Leu  
 355 360 365  
 Phe Arg Ala Gln Phe Gln Tyr Arg Asn Arg Ile Ala Met Glu Phe Asn  
 370 375 380  
 His Leu Tyr His Trp His Pro Leu Met Pro Asn Ser Phe Gln Val Gly

|                 |   |                         |     |
|-----------------|---|-------------------------|-----|
| 385             | 390   | 395                     | 400 |
| Ser Gln Glu Tyr | Ser Tyr Glu Gln Phe Leu                         | Phe Asn Thr Ser Met Leu |     |
|                 | 405   | 410                     | 415 |
| Val Asp Tyr Gly | Val Glu Ala Leu Val Asp Ala Phe Ser Arg Gln Arg |                         |     |
|                 | 420   | 425                     | 430 |
| Ala Gly Arg Ile | Gly Gly Gly Arg Asn Phe Asp Tyr His Val Leu His |                         |     |
|                 | 435   | 440                     | 445 |
| Val Ala Val Asp | Val Ile Lys Glu Ser Arg Glu Met Arg Leu Gln Pro |                         |     |
|                 | 450   | 455                     | 460 |
| Phe Asn Glu Tyr | Arg Lys Arg Phe Gly Leu Lys Pro Tyr Thr Ser Phe |                         |     |
| 465             | 470   | 475                     | 480 |
| Gln Glu Leu Thr | Gly Glu Lys Glu Met Ala Ala Glu Leu Glu Glu Leu |                         |     |
|                 | 485   | 490                     | 495 |
| Tyr Gly Asp Ile | Asp Ala Leu Glu Phe Tyr Pro Gly Leu Leu Leu Glu |                         |     |
|                 | 500   | 505                     | 510 |
| Lys Cys Gln Pro | Asn Ser Ile Phe Gly Glu Ser Met Ile Glu Met Gly |                         |     |
|                 | 515   | 520                     | 525 |
| Ala Pro Phe Ser | Leu Lys Gly Leu Leu Gly Asn Pro Ile Cys Ser Pro |                         |     |
|                 | 530   | 535                     | 540 |
| Glu Tyr Trp Lys | Pro Ser Thr Phe Gly Gly Asp Val Gly Phe Asn Leu |                         |     |
| 545             | 550   | 555                     | 560 |
| Val Asn Thr Ala | Ser Leu Lys Lys Leu Val Cys Leu Asn Thr Lys Thr |                         |     |
|                 | 565   | 570                     | 575 |
| Cys Pro Tyr Val | Ser Phe Arg Val Pro Asp Tyr Pro Gly Asp Asp Gly |                         |     |
|                 | 580   | 585                     | 590 |
| Ser Val Leu Val | Arg Arg Ser Thr Glu Leu                         |                         |     |
|                 | 595   | 600                     |     |

&lt;210&gt; 850

&lt;211&gt; 509

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 850

cgaatcggct gggcgtttgg cctgggatta gaaagattgg cgatggtcct ctacgacatt 60  
 cctgacatcc gccittttctg gagtgaggat gagcgcttcc tgaagcagtt cctcctgtcg 120  
 gacatcaacc agagtgtcaa gtttcagcct cttagcaagt acccgcgcgt gttcaatgac 180  
 atttcattct ggctgccctc tgagaactac acggagaaatg atttctatga catcgctccga 240  
 acagtcggag gagacctggt agaaaagggt gatcttatag acaagtltga acatccaaag 300  
 acacacagga ccagccactg ctaccgcatt acctaccgcc acatggaacg gacactgtcc 360  
 cagagagaag tcggcaatgt ccaccaggct gtgcaggagg ccgccgtgca gctgctgggt 420  
 gtggaggggc gtttctgatg cagtggcagt ccacaggcca cagccctcat agagctccag 480  
 ggagcacagg aagggggaaa acattgttt 509

&lt;210&gt; 851

&lt;211&gt; 1941

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (161).. (643)

&lt;400&gt; 851

cgcccggtgt gtgtgtgcgt gagtgtgtgt gagtgagtga gcgagtgagt gagtgtgtgc 60  
 gtggggggcac tcggcttgtt gtgtcggtg acttccccct tccctccacc cctccccctcc 120  
 ccggccgccc ctgcagtggc cgctccctgg gccgtaggaa atg agc gat aac gat 175

Met Ser Asp Asn Asp

|   |     |     |     |
|---|-----|-----|-----|
|   | 1   | 5   |     |
| gac atc gag gtg gag agc gac gaa gag caa gcg agg ttt caa tct gcg |     |     | 223 |
| Asp Ile Glu Val Glu Ser Asp Glu Glu Gln Ala Arg Phe Gln Ser Ala |     |     |     |
| 10  | 15  | 20  |     |
| gct gac aag cgg gct cac cat aat gca ctg gaa cga aaa cgt agg gac |     |     | 271 |
| Ala Asp Lys Arg Ala His His Asn Ala Leu Glu Arg Lys Arg Arg Asp |     |     |     |
| 25  | 30  | 35  |     |
| cac atc aaa gac agc ttt cac agt ttg cgg gac tca gtc cca tca ctc |     |     | 319 |
| His Ile Lys Asp Ser Phe His Ser Leu Arg Asp Ser Val Pro Ser Leu |     |     |     |
| 40  | 45  | 50  |     |
| caa gga gag aag gca tcc cgg gcc caa atc cta gac aaa gca aca gag |     |     | 367 |
| Gln Gly Glu Lys Ala Ser Arg Ala Gln Ile Leu Asp Lys Ala Thr Glu |     |     |     |
| 55  | 60  | 65  |     |
| tat atc cag tat atg cga agg aaa aac gat acg cac cag caa gac att |     |     | 415 |
| Tyr Ile Gln Tyr Met Arg Arg Lys Asn Asp Thr His Gln Gln Asp Ile |     |     |     |
| 70  | 75  | 80  | 85  |
| gat gac ctc aag cgg cag aat gct ctt ctg gag caa caa gtc cgt gca |     |     | 463 |
| Asp Asp Leu Lys Arg Gln Asn Ala Leu Leu Glu Gln Gln Val Arg Ala |     |     |     |
| 90  | 95  | 100 |     |
| ctg gag aag gca aga tca agt gcc caa ctg cag acc aac tac ccc tcc |     |     | 511 |
| Leu Glu Lys Ala Arg Ser Ser Ala Gln Leu Gln Thr Asn Tyr Pro Ser |     |     |     |
| 105   | 110 | 115 |     |
| tca gac aac agc ctc tac acc aac gcc aag ggc ggc acc atc tct gcc |     |     | 559 |
| Ser Asp Asn Ser Leu Tyr Thr Asn Ala Lys Gly Gly Thr Ile Ser Ala |     |     |     |
| 120   | 125 | 130 |     |
| ttc gat ggg ggt tca gac tcc agc tca gaa tcc gag cct gaa gag ccc |     |     | 607 |
| Phe Asp Gly Gly Ser Asp Ser Ser Ser Glu Ser Glu Pro Glu Glu Pro |     |     |     |
| 135   | 140 | 145 |     |
| cag agc agg aag aaa ctc cgg atg gag gcc agc taa gccatgcggg      |     |     | 653 |

Gln Ser Arg Lys Lys Leu Arg Met Glu Ala Ser

150

155

160

gcaggccagc aataaaactg tcgactctct cgtcgcatcc tccttctgtt catcattaga 713  
 accctcagaa ccattgagaa gactctttat ttcccttttc tctttattaa ttgtttttt 773  
 tgcatagaag ctcttggaca acagctctca tccccctccc tgtgtccatt atttttaaat 833  
 gtattccctt caggggttcc tgtccccacc agaaatttta aaccaaaca cccaacttg 893  
 gcagctcttt ctgtggagga cagacggccg gccagacctc tgagtacacg gtgtcctgcc 953  
 caccctacca gctccctcag ccctcagagc acgtgcctgg aggacgctg ctctaccagg 1013  
 ctctccctccc agtccctccct cactctgtt ttgtggactt tgtgactctg aacttttctg 1073  
 ctttggcaag aagacctgat tggagtaatc agaactcact ccttcccttg taaggattat 1133  
 ttttttgga aagctgtctc tcctgttgaa agacgggatt ctgaagaag tttgtgtggt 1193  
 agaaaaggaa agtggggaca gatttgcagc acccatggca cagtctgtaa cttcggctgt 1253  
 ttaagcctga agaccagcc ttccagaagg ccacgggacg ctggtatgta tgtataggag 1313  
 acggcggcag tgaacgaac ggctctcagg agtgggggtg gctatgtggg tggggctggg 1373  
 agggagtctt agtggggta gaggttttgt attaagggcc agtgatgatg ttttgatatt 1433  
 tatttccctgc tactgaaatt tgaatctgaa tgaaatgccc cctatttctg atgatgtcga 1493  
 tattgtaaag cgacagattc ataaagtaat gatcaaactc tcatttcttt ctgtgtgtat 1553  
 ttctaagaaa tagagccaac tattttgtat gtaaatacca agagcgactt acctgggtact 1613  
 aaaccacag ccagtcag cctccgccct gcttctttcc tctgtcctg gaacttgtcg 1673  
 ccaccgtgtg atccagtcct ggctctggct gtggtcagca gatccagtg aagggtttct 1733  
 tgtcttgatg cttcatttct ttgtcttttt cctactctgt tgccggcatt tgctgatttc 1793  
 tagtgtatac ttgtagtct cagtcgggtg tgattccatt ccatggaaat aaagagtatg 1853  
 ttgtacatac tgcccaagaa ttgtcctgca agttaaggct tcccccttca ctataagaat 1913  
 ataaataaaa acttatttta tccttgtc 1941

&lt;210&gt; 852

&lt;211&gt; 160

&lt;212&gt; PRT

&lt;213&gt; Mus musculus



&lt;400&gt; 852

Met Ser Asp Asn Asp Asp Ile Glu Val Glu Ser Asp Glu Glu Gln Ala  
 1 5 10 15  
 Arg Phe Gln Ser Ala Ala Asp Lys Arg Ala His His Asn Ala Leu Glu  
 20 25 30  
 Arg Lys Arg Arg Asp His Ile Lys Asp Ser Phe His Ser Leu Arg Asp  
 35 40 45  
 Ser Val Pro Ser Leu Gln Gly Glu Lys Ala Ser Arg Ala Gln Ile Leu  
 50 55 60  
 Asp Lys Ala Thr Glu Tyr Ile Gln Tyr Met Arg Arg Lys Asn Asp Thr  
 65 70 75 80  
 His Gln Gln Asp Ile Asp Asp Leu Lys Arg Gln Asn Ala Leu Leu Glu  
 85 90 95  
 Gln Gln Val Arg Ala Leu Glu Lys Ala Arg Ser Ser Ala Gln Leu Gln  
 100 105 110  
 Thr Asn Tyr Pro Ser Ser Asp Asn Ser Leu Tyr Thr Asn Ala Lys Gly  
 115 120 125  
 Gly Thr Ile Ser Ala Phe Asp Gly Gly Ser Asp Ser Ser Ser Glu Ser  
 130 135 140  
 Glu Pro Glu Glu Pro Gln Ser Arg Lys Lys Leu Arg Met Glu Ala Ser  
 145 150 155 160

&lt;210&gt; 853

&lt;211&gt; 2844

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (230).. (1564)

&lt;400&gt; 853

gccagaggcg ggaccagagc cctaaggggc tcgaaattac ggaagttttg tgcggagggt 60  
 cgggtggctg ctggagtcc tgctggattt acggctccgg agttggggct gctgctgggg 120  
 gggcttcaga gccgccagcc tccgcacggt ttgcggtggt gacccgggcg cgactcgacg 180  
 gcgcigctgc gggccttgtc tgtagtaggg gacccctcgg atctccacc atg gcg tcc 238

Met Ala Ser

1

acg aac acc aac ctg cag aaa gca ata gat ctt gca agc aaa gca gcc 286  
 Thr Asn Thr Asn Leu Gln Lys Ala Ile Asp Leu Ala Ser Lys Ala Ala

5

10

15

cag gaa gac aaa gct ggg aac tat gag gaa gct ctt caa ctc tac caa 334  
 Gln Glu Asp Lys Ala Gly Asn Tyr Glu Glu Ala Leu Gln Leu Tyr Gln

20

25

30

35

cat gct gtg cag tat ttt ctc cat gtt gtt aaa tat gaa gca caa ggt 382  
 His Ala Val Gln Tyr Phe Leu His Val Val Lys Tyr Glu Ala Gln Gly

40

45

50

gat aaa gcc aag caa agt atc agg gcc aag tgt aca gaa tat ctc gat 430  
 Asp Lys Ala Lys Gln Ser Ile Arg Ala Lys Cys Thr Glu Tyr Leu Asp

55

60

65

aga gca gaa aaa cta aag gaa tat ctg aag aaa aag gag aag aaa cca 478  
 Arg Ala Glu Lys Leu Lys Glu Tyr Leu Lys Lys Lys Glu Lys Lys Pro

70

75

80

cag aag cct gtg aaa gag gca cag tca ggc cca gtt gat gag aag ggg 526  
 Gln Lys Pro Val Lys Glu Ala Gln Ser Gly Pro Val Asp Glu Lys Gly

85

90

95

aat gac agt gat ggg gaa gca gaa tct gat gat cct gaa aaa aag aaa 574

|   |             |
|---|-------------|
| Asn Asp Ser Asp Gly Glu Ala Glu Ser Asp Asp Pro Glu Lys Lys Lys |             |
| 100   | 105 110 115 |
| ctg cag aat caa ctt caa ggt gcc att gtt ata gag cga cca aat gtg | 622         |
| Leu Gln Asn Gln Leu Gln Gly Ala Ile Val Ile Glu Arg Pro Asn Val |             |
| 120 125 130   |             |
| aag tgg agt gat gtt gct ggt ctc gaa gga gcc aaa gaa gct ctt aaa | 670         |
| Lys Trp Ser Asp Val Ala Gly Leu Glu Gly Ala Lys Glu Ala Leu Lys |             |
| 135 140 145   |             |
| gag gct gtg att ctg cct att aag ttt cct cat ctg ttt aca gga aag | 718         |
| Glu Ala Val Ile Leu Pro Ile Lys Phe Pro His Leu Phe Thr Gly Lys |             |
| 150 155 160   |             |
| cgg aca cct tgg aga gga atc cta tta ttt gga cca cca gga aca gga | 766         |
| Arg Thr Pro Trp Arg Gly Ile Leu Leu Phe Gly Pro Pro Gly Thr Gly |             |
| 165 170 175   |             |
| aaa tct tat ttg gct aaa gct gtt gca acg gaa gca aac aac tca aca | 814         |
| Lys Ser Tyr Leu Ala Lys Ala Val Ala Thr Glu Ala Asn Asn Ser Thr |             |
| 180 185 190 195   |             |
| ttt ttc tca ata tct tcc tct gac ctt gtg tct aag tgg ctg ggg gaa | 862         |
| Phe Phe Ser Ile Ser Ser Ser Asp Leu Val Ser Lys Trp Leu Gly Glu |             |
| 200 205 210   |             |
| agc gaa aaa ctg gtt aag aac tta ttc cag ctt gcc aga gag aac aag | 910         |
| Ser Glu Lys Leu Val Lys Asn Leu Phe Gln Leu Ala Arg Glu Asn Lys |             |
| 215 220 225   |             |
| cct tct atc atc ttc atc gat gag att gat tct ctg tgt ggt tcc aga | 958         |
| Pro Ser Ile Ile Phe Ile Asp Glu Ile Asp Ser Leu Cys Gly Ser Arg |             |
| 230 235 240   |             |
| agt gag aat gag agc gag gct gca cgg aga att aag acg gag ttc ctg | 1006        |
| Ser Glu Asn Glu Ser Glu Ala Ala Arg Arg Ile Lys Thr Glu Phe Leu |             |
| 245 250 255   |             |

gtt caa atg caa gga gtt ggt gtg gac aat gat ggc att ttg gtt ctg 1054  
 Val Gln Met Gln Gly Val Gly Val Asp Asn Asp Gly Ile Leu Val Leu  
 260 265 270 275  
 gga gct aca aat ata ccc tgg gtt ctg gat tct gca att agg cga aga 1102  
 Gly Ala Thr Asn Ile Pro Trp Val Leu Asp Ser Ala Ile Arg Arg Arg  
 280 285 290  
 ttt gag aaa cgt att tat att cct ttg ccc gaa gcc cat gcc cga gca 1150  
 Phe Glu Lys Arg Ile Tyr Ile Pro Leu Pro Glu Ala His Ala Arg Ala  
 295 300 305  
 gcc atg ttt aga ctg cac ttg ggc agc act cag aac agc ctc aca gaa 1198  
 Ala Met Phe Arg Leu His Leu Gly Ser Thr Gln Asn Ser Leu Thr Glu  
 310 315 320  
 gca gac ttc caa gaa ctt ggg agg aag acg gat ggc tat tca gga gta 1246  
 Ala Asp Phe Gln Glu Leu Gly Arg Lys Thr Asp Gly Tyr Ser Gly Val  
 325 330 335  
 gat ata agt atc att gta cgg gat gca ctt atg cag cct gtg aga aaa 1294  
 Asp Ile Ser Ile Ile Val Arg Asp Ala Leu Met Gln Pro Val Arg Lys  
 340 345 350 355  
 gtt cag tca gct act cac ttc aaa aag gtt cgt gga ccc tca aga gct 1342  
 Val Gln Ser Ala Thr His Phe Lys Lys Val Arg Gly Pro Ser Arg Ala  
 360 365 370  
 gat cct aac tgc att gta aat gac ctg ctg aca ccc tgc tct ccg gga 1390  
 Asp Pro Asn Cys Ile Val Asn Asp Leu Leu Thr Pro Cys Ser Pro Gly  
 375 380 385  
 gac cct ggg gct att gaa atg aca tgg atg gat gtt cct gga gat aaa 1438  
 Asp Pro Gly Ala Ile Glu Met Thr Trp Met Asp Val Pro Gly Asp Lys  
 390 395 400  
 ctc ttg gag cca gtt gtt tcc atg tgg gat atg ctg cgg tcc ctg tcc 1486  
 Leu Leu Glu Pro Val Val Ser Met Trp Asp Met Leu Arg Ser Leu Ser

405                      410                      415  
 agc aca aag cca aca gtc aat gag cag gac ttg ttg aag ctg aag aag 1534  
 Ser Thr Lys Pro Thr Val Asn Glu Gln Asp Leu Leu Lys Leu Lys Lys  
 420                      425                      430                      435  
 ttt aca gaa gat ttt ggc cag gaa ggc taa cacaagaca gcaagaacat 1584  
 Phe Thr Glu Asp Phe Gly Gln Glu Gly  
 440                      445  
 gtttatgctg catttcitct cttttgtagg tattttgcct ttcttggatg acattcagat 1644  
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 tttctaaatc agtagtcac tttgccttgt ctacgcagtg tcttttatag ccaagattga 2244  
 ccaaaagagg tagcaaaca gtatgcattt ttcgagaatt gtcatgaaat actgtaatgg 2304  
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 tgcagttcta ctttgcgagt gctacacggg aattgcattt taaagtatat ttgcacattt 2724  
 tacatgctat gctatatgat tgcctttggg ttttgtgtac agactatitt tgttgatatt 2784  
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&lt;210&gt; 854

&lt;211&gt; 444

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 854

Met Ala Ser Thr Asn Thr Asn Leu Gln Lys Ala Ile Asp Leu Ala Ser  
 1 5 10 15  
 Lys Ala Ala Gln Glu Asp Lys Ala Gly Asn Tyr Glu Glu Ala Leu Gln  
 20 25 30  
 Leu Tyr Gln His Ala Val Gln Tyr Phe Leu His Val Val Lys Tyr Glu  
 35 40 45  
 Ala Gln Gly Asp Lys Ala Lys Gln Ser Ile Arg Ala Lys Cys Thr Glu  
 50 55 60  
 Tyr Leu Asp Arg Ala Glu Lys Leu Lys Glu Tyr Leu Lys Lys Lys Glu  
 65 70 75 80  
 Lys Lys Pro Gln Lys Pro Val Lys Glu Ala Gln Ser Gly Pro Val Asp  
 85 90 95  
 Glu Lys Gly Asn Asp Ser Asp Gly Glu Ala Glu Ser Asp Asp Pro Glu  
 100 105 110  
 Lys Lys Lys Leu Gln Asn Gln Leu Gln Gly Ala Ile Val Ile Glu Arg  
 115 120 125  
 Pro Asn Val Lys Trp Ser Asp Val Ala Gly Leu Glu Gly Ala Lys Glu  
 130 135 140  
 Ala Leu Lys Glu Ala Val Ile Leu Pro Ile Lys Phe Pro His Leu Phe  
 145 150 155 160  
 Thr Gly Lys Arg Thr Pro Trp Arg Gly Ile Leu Leu Phe Gly Pro Pro  
 165 170 175  
 Gly Thr Gly Lys Ser Tyr Leu Ala Lys Ala Val Ala Thr Glu Ala Asn

|   |     |     |
|---|-----|-----|
| 180   | 185 | 190 |
| Asn Ser Thr Phe Phe Ser Ile Ser Ser Ser Asp Leu Val Ser Lys Trp |     |     |
| 195   | 200 | 205 |
| Leu Gly Glu Ser Glu Lys Leu Val Lys Asn Leu Phe Gln Leu Ala Arg |     |     |
| 210   | 215 | 220 |
| Glu Asn Lys Pro Ser Ile Ile Phe Ile Asp Glu Ile Asp Ser Leu Cys |     |     |
| 225   | 230 | 235 |
| Gly Ser Arg Ser Glu Asn Glu Ser Glu Ala Ala Arg Arg Ile Lys Thr |     |     |
| 245   | 250 | 255 |
| Glu Phe Leu Val Gln Met Gln Gly Val Gly Val Asp Asn Asp Gly Ile |     |     |
| 260   | 265 | 270 |
| Leu Val Leu Gly Ala Thr Asn Ile Pro Trp Val Leu Asp Ser Ala Ile |     |     |
| 275   | 280 | 285 |
| Arg Arg Arg Phe Glu Lys Arg Ile Tyr Ile Pro Leu Pro Glu Ala His |     |     |
| 290   | 295 | 300 |
| Ala Arg Ala Ala Met Phe Arg Leu His Leu Gly Ser Thr Gln Asn Ser |     |     |
| 305   | 310 | 315 |
| Leu Thr Glu Ala Asp Phe Gln Glu Leu Gly Arg Lys Thr Asp Gly Tyr |     |     |
| 325   | 330 | 335 |
| Ser Gly Val Asp Ile Ser Ile Ile Val Arg Asp Ala Leu Met Gln Pro |     |     |
| 340   | 345 | 350 |
| Val Arg Lys Val Gln Ser Ala Thr His Phe Lys Lys Val Arg Gly Pro |     |     |
| 355   | 360 | 365 |
| Ser Arg Ala Asp Pro Asn Cys Ile Val Asn Asp Leu Leu Thr Pro Cys |     |     |
| 370   | 375 | 380 |
| Ser Pro Gly Asp Pro Gly Ala Ile Glu Met Thr Trp Met Asp Val Pro |     |     |
| 385   | 390 | 395 |
| Gly Asp Lys Leu Leu Glu Pro Val Val Ser Met Trp Asp Met Leu Arg |     |     |
| 405   | 410 | 415 |

Ser Leu Ser Ser Thr Lys Pro Thr Val Asn Glu Gln Asp Leu Leu Lys  
 420 425 430

Leu Lys Lys Phe Thr Glu Asp Phe Gly Gln Glu Gly  
 435 440

<210> 855

<211> 1509

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (31).. (1368)

<400> 855

atdtaacaag cgctcctttc ccccggaag atg gcg gag tac gac ctg act act 54

Met Ala Glu Tyr Asp Leu Thr Thr

1

5

cgc atc gcg cat ttt ctg gat cgg cac ctg gtc ttt ccg ctt ctt gag 102

Arg Ile Ala His Phe Leu Asp Arg His Leu Val Phe Pro Leu Leu Glu

10

15

20

ttt ctc tct gtg aaa gag att tat aat gaa aaa gaa tta tta caa gga 150

Phe Leu Ser Val Lys Glu Ile Tyr Asn Glu Lys Glu Leu Leu Gln Gly

25

30

35

40

aaa tta gat ctt ctt agt gat acc aat atg gtg gac ttt gct atg gat 198

Lys Leu Asp Leu Leu Ser Asp Thr Asn Met Val Asp Phe Ala Met Asp

45

50

55

gtt tac aaa aac ctt tat tct gat gat atc cct cat gct ttg aga gaa 246

Val Tyr Lys Asn Leu Tyr Ser Asp Asp Ile Pro His Ala Leu Arg Glu



|   |     |     |     |
|---|-----|-----|-----|
| 60  | 65  | 70  |     |
| aaa aga acc aca gtt gtt gcg cag ctg aaa cag ctc cag gca gaa aca | 294 |     |     |
| Lys Arg Thr Thr Val Val Ala Gln Leu Lys Gln Leu Gln Ala Glu Thr |     |     |     |
| 75  | 80  | 85  |     |
| gaa cca att gtg aag atg ttt gaa gat cca gaa act aca agg cag atg | 342 |     |     |
| Glu Pro Ile Val Lys Met Phe Glu Asp Pro Glu Thr Thr Arg Gln Met |     |     |     |
| 90  | 95  | 100 |     |
| cag tca acc agg gat ggc agg atg tta ttt gac tac ctg gca gac aaa | 390 |     |     |
| Gln Ser Thr Arg Asp Gly Arg Met Leu Phe Asp Tyr Leu Ala Asp Lys |     |     |     |
| 105   | 110 | 115 | 120 |
| cat ggg ttt agg caa gag tac tta gat aca ctc tac aga tac gca aaa | 438 |     |     |
| His Gly Phe Arg Gln Glu Tyr Leu Asp Thr Leu Tyr Arg Tyr Ala Lys |     |     |     |
| 125   | 130 | 135 |     |
| ttc cag tat gag tgt gga aat tac tct gga gct gca gag tat ctt tac | 486 |     |     |
| Phe Gln Tyr Glu Cys Gly Asn Tyr Ser Gly Ala Ala Glu Tyr Leu Tyr |     |     |     |
| 140   | 145 | 150 |     |
| ttc ttt aga gtt ttg gtc cca gca aca gat aga aat gct tta agt tgc | 534 |     |     |
| Phe Phe Arg Val Leu Val Pro Ala Thr Asp Arg Asn Ala Leu Ser Ser |     |     |     |
| 155   | 160 | 165 |     |
| ctc tgg gga aaa ctg gcc tct gaa atc tta atg cag aat tgg gat gca | 582 |     |     |
| Leu Trp Gly Lys Leu Ala Ser Glu Ile Leu Met Gln Asn Trp Asp Ala |     |     |     |
| 170   | 175 | 180 |     |
| gcc atg gaa gac ctt act cga tta aaa gaa acc ata gac aat aat tct | 630 |     |     |
| Ala Met Glu Asp Leu Thr Arg Leu Lys Glu Thr Ile Asp Asn Asn Ser |     |     |     |
| 185   | 190 | 195 | 200 |
| gtg agt tct cca ctc cag tct ctt cag cag cga aca tgg ctc att cat | 678 |     |     |
| Val Ser Ser Pro Leu Gln Ser Leu Gln Gln Arg Thr Trp Leu Ile His |     |     |     |
| 205   | 210 | 215 |     |
| tgg tct cta ttt gtt ttt ttc aac cat cca aag ggc cgt gat aac att | 726 |     |     |

Trp Ser Leu Phe Val Phe Phe Asn His Pro Lys Gly Arg Asp Asn Ile  
 220 225 230  
 att gat ctc ttc ctt tac caa cca cag tat ctt aat gca att cag aca 774  
 Ile Asp Leu Phe Leu Tyr Gln Pro Gln Tyr Leu Asn Ala Ile Gln Thr  
 235 240 245  
 atg tgt cca cat att cta cgc tat ttg act act gcc gtc ata acc aac 822  
 Met Cys Pro His Ile Leu Arg Tyr Leu Thr Thr Ala Val Ile Thr Asn  
 250 255 260  
 aaa gat gtg cgg aaa cgc cgg cag gtg ctg aaa gat ctg gtg aaa gtg 870  
 Lys Asp Val Arg Lys Arg Arg Gln Val Leu Lys Asp Leu Val Lys Val  
 265 270 275 280  
 att caa cag gag tct tac aca tat aaa gac cca att aca gaa ttt gtt 918  
 Ile Gln Gln Glu Ser Tyr Thr Tyr Lys Asp Pro Ile Thr Glu Phe Val  
 285 290 295  
 gaa tgc cta tat gtt aac ttt gat ttt gac ggg gct cag aaa aag ctg 966  
 Glu Cys Leu Tyr Val Asn Phe Asp Phe Asp Gly Ala Gln Lys Lys Leu  
 300 305 310  
 aga gaa tgt gaa tca gtg ctc gtg aat gac ttc ttc ctg gta gcg tgt 1014  
 Arg Glu Cys Glu Ser Val Leu Val Asn Asp Phe Phe Leu Val Ala Cys  
 315 320 325  
 ctg gag gac ttc att gag aat gcc cgt ctc ttc ata ttt gag acg ttt 1062  
 Leu Glu Asp Phe Ile Glu Asn Ala Arg Leu Phe Ile Phe Glu Thr Phe  
 330 335 340  
 tgt cgt atc cac cag tgt atc agc att aat atg tta gca gat aaa ctg 1110  
 Cys Arg Ile His Gln Cys Ile Ser Ile Asn Met Leu Ala Asp Lys Leu  
 345 350 355 360  
 aat atg act cca gaa gaa gct gaa aga tgg att gtg aat ttg att aga 1158  
 Asn Met Thr Pro Glu Glu Ala Glu Arg Trp Ile Val Asn Leu Ile Arg  
 365 370 375

aat gcg agg ttg gat gcc aag att gat tct aaa cta ggt cat gtg gta 1206  
 Asn Ala Arg Leu Asp Ala Lys Ile Asp Ser Lys Leu Gly His Val Val  
 380 385 390  
 atg ggc aac aat gca gtc tgc ccc tac cag caa gtg att gaa aag acc 1254  
 Met Gly Asn Asn Ala Val Ser Pro Tyr Gln Gln Val Ile Glu Lys Thr  
 395 400 405  
 aaa agc ctt tct ttt aga agc caa atg ttg gcc atg aat att gaa aag 1302  
 Lys Ser Leu Ser Phe Arg Ser Gln Met Leu Ala Met Asn Ile Glu Lys  
 410 415 420  
 aaa ctt aat cag aac agt aga tca gag gct ccc aac tgg gca acc caa 1350  
 Lys Leu Asn Gln Asn Ser Arg Ser Glu Ala Pro Asn Trp Ala Thr Gln  
 425 430 435 440  
 gac tct ggc ttc tat taa aggattataa agaaaagaag aaaaaggaat 1398  
 Asp Ser Gly Phe Tyr  
 445  
 aagtgaaga cacagtagcc attgtgtata aaggatgaca tacattttta gaagcaatta 1458  
 acatgtttgc tacaaatttt ggagaatttg aataaaattg gctatgatta a 1509

&lt;210&gt; 856

&lt;211&gt; 445

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 856

Met Ala Glu Tyr Asp Leu Thr Thr Arg Ile Ala His Phe Leu Asp Arg  
 1 5 10 15  
 His Leu Val Phe Pro Leu Leu Glu Phe Leu Ser Val Lys Glu Ile Tyr  
 20 25 30  
 Asn Glu Lys Glu Leu Leu Gln Gly Lys Leu Asp Leu Leu Ser Asp Thr

|   |     |     |
|---|-----|-----|
| 35  | 40  | 45  |
| Asn Met Val Asp Phe Ala Met Asp Val Tyr Lys Asn Leu Tyr Ser Asp |     |     |
| 50  | 55  | 60  |
| Asp Ile Pro His Ala Leu Arg Glu Lys Arg Thr Thr Val Val Ala Gln |     |     |
| 65  | 70  | 75  |
| Leu Lys Gln Leu Gln Ala Glu Thr Glu Pro Ile Val Lys Met Phe Glu |     | 80  |
| 85  | 90  | 95  |
| Asp Pro Glu Thr Thr Arg Gln Met Gln Ser Thr Arg Asp Gly Arg Met |     |     |
| 100   | 105 | 110 |
| Leu Phe Asp Tyr Leu Ala Asp Lys His Gly Phe Arg Gln Glu Tyr Leu |     |     |
| 115   | 120 | 125 |
| Asp Thr Leu Tyr Arg Tyr Ala Lys Phe Gln Tyr Glu Cys Gly Asn Tyr |     |     |
| 130   | 135 | 140 |
| Ser Gly Ala Ala Glu Tyr Leu Tyr Phe Phe Arg Val Leu Val Pro Ala |     |     |
| 145   | 150 | 155 |
| Thr Asp Arg Asn Ala Leu Ser Ser Leu Trp Gly Lys Leu Ala Ser Glu |     | 160 |
| 165   | 170 | 175 |
| Ile Leu Met Gln Asn Trp Asp Ala Ala Met Glu Asp Leu Thr Arg Leu |     |     |
| 180   | 185 | 190 |
| Lys Glu Thr Ile Asp Asn Asn Ser Val Ser Ser Pro Leu Gln Ser Leu |     |     |
| 195   | 200 | 205 |
| Gln Gln Arg Thr Trp Leu Ile His Trp Ser Leu Phe Val Phe Phe Asn |     |     |
| 210   | 215 | 220 |
| His Pro Lys Gly Arg Asp Asn Ile Ile Asp Leu Phe Leu Tyr Gln Pro |     |     |
| 225   | 230 | 235 |
| Gln Tyr Leu Asn Ala Ile Gln Thr Met Cys Pro His Ile Leu Arg Tyr |     | 240 |
| 245   | 250 | 255 |
| Leu Thr Thr Ala Val Ile Thr Asn Lys Asp Val Arg Lys Arg Arg Gln |     |     |
| 260   | 265 | 270 |

Val Leu Lys Asp Leu Val Lys Val Ile Gln Gln Glu Ser Tyr Thr Tyr  
275 280 285  
Lys Asp Pro Ile Thr Glu Phe Val Glu Cys Leu Tyr Val Asn Phe Asp  
290 295 300  
Phe Asp Gly Ala Gln Lys Lys Leu Arg Glu Cys Glu Ser Val Leu Val  
305 310 315 320  
Asn Asp Phe Phe Leu Val Ala Cys Leu Glu Asp Phe Ile Glu Asn Ala  
325 330 335  
Arg Leu Phe Ile Phe Glu Thr Phe Cys Arg Ile His Gln Cys Ile Ser  
340 345 350  
Ile Asn Met Leu Ala Asp Lys Leu Asn Met Thr Pro Glu Glu Ala Glu  
355 360 365  
Arg Trp Ile Val Asn Leu Ile Arg Asn Ala Arg Leu Asp Ala Lys Ile  
370 375 380  
Asp Ser Lys Leu Gly His Val Val Met Gly Asn Asn Ala Val Ser Pro  
385 390 395 400  
Tyr Gln Gln Val Ile Glu Lys Thr Lys Ser Leu Ser Phe Arg Ser Gln  
405 410 415  
Met Leu Ala Met Asn Ile Glu Lys Lys Leu Asn Gln Asn Ser Arg Ser  
420 425 430  
Glu Ala Pro Asn Trp Ala Thr Gln Asp Ser Gly Phe Tyr  
435 440 445

&lt;210&gt; 857

&lt;211&gt; 2769

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (385).. (2769)

&lt;400&gt; 857

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gtgaccgcgc gcctcggcgc cagccccgcg gatagaagag aagaatcagt ggtttgaaa 180
tttagccaag tgatctggcg ggatgggcctt atacctgaca cattttatag aggcattgga 240
tggcacaagt gactgagagg atcccgagag ttccggggc ctgtgaaagg tagaaactca 300
accatgattt ctttctcaac tcaacagcat tcccttcctt gaagtcttcg tttttacttc 360
agcctcaggc agttatactt aagc atg aac att gac gac aaa ctg gaa gga 411
                                Met Asn Ile Asp Asp Lys Leu Glu Gly
                                1             5
ttg ttt ctt aaa tgt ggc ggc ata gac gaa atg cag tct tcc agg gca 459
Leu Phe Leu Lys Cys Gly Gly Ile Asp Glu Met Gln Ser Ser Arg Ala
10             15             20             25
atg gtt gta atg ggt gga gtg tct ggc cag tcc gcc gtg tct gga gaa 507
Met Val Val Met Gly Gly Val Ser Gly Gln Ser Ala Val Ser Gly Glu
30             35             40
ctg cag gag tca gta ctt caa gat cga agt ttg cct cac cag gag atc 555
Leu Gln Glu Ser Val Leu Gln Asp Arg Ser Leu Pro His Gln Glu Ile
45             50             55
ctt gct gca gac gaa gtg tta caa gag agt gaa atg aga caa cag gat 603
Leu Ala Ala Asp Glu Val Leu Gln Glu Ser Glu Met Arg Gln Gln Asp
60             65             70
atg ata tcc cat gat gaa ctg atg gtc cac gag gag aca .gtg aaa aat 651
Met Ile Ser His Asp Glu Leu Met Val His Glu Glu Thr Val Lys Asn
75             80             85
gac gaa gag cag atg gac acc cac gag cgg ctt ccc caa gga ctg cag 699

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|
| Asp | Glu | Glu | Gln | Met | Asp | Thr | His | Glu | Arg | Leu | Pro | Gln | Gly | Leu | Gln |      |  |  |  |
| 90  |     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |      |  |  |  |
| tat | gca | ctc | aat | gtc | cct | ata | agt | gta | aag | cag | gaa | att | act | ttt | act | 747  |  |  |  |
| Tyr | Ala | Leu | Asn | Val | Pro | Ile | Ser | Val | Lys | Gln | Glu | Ile | Thr | Phe | Thr |      |  |  |  |
|     |     |     | 110 |     |     |     |     |     | 115 |     |     |     |     | 120 |     |      |  |  |  |
| gat | gta | tct | gag | caa | ctg | atg | aga | gac | aaa | aaa | caa | gtc | aga | gag | cca | 795  |  |  |  |
| Asp | Val | Ser | Glu | Gln | Leu | Met | Arg | Asp | Lys | Lys | Gln | Val | Arg | Glu | Pro |      |  |  |  |
|     |     |     | 125 |     |     |     |     |     | 130 |     |     |     |     | 135 |     |      |  |  |  |
| gta | gac | tta | cag | aaa | aag | aag | aag | cgg | aaa | caa | cgc | tct | cct | gca | aaa | 843  |  |  |  |
| Val | Asp | Leu | Gln | Lys | Lys | Lys | Lys | Arg | Lys | Gln | Arg | Ser | Pro | Ala | Lys |      |  |  |  |
|     |     |     | 140 |     |     |     |     | 145 |     |     |     |     |     | 150 |     |      |  |  |  |
| atc | ctt | aca | ata | aat | gag | gat | gga | tca | ctt | ggt | ttg | aaa | acc | cct | aaa | 891  |  |  |  |
| Ile | Leu | Thr | Ile | Asn | Glu | Asp | Gly | Ser | Leu | Gly | Leu | Lys | Thr | Pro | Lys |      |  |  |  |
|     |     |     | 155 |     |     |     |     | 160 |     |     |     |     |     | 165 |     |      |  |  |  |
| tct | cac | gtt | tgt | gag | cac | tgc | aat | gct | gcc | ttt | aga | acg | aac | tat | cac | 939  |  |  |  |
| Ser | His | Val | Cys | Glu | His | Cys | Asn | Ala | Ala | Phe | Arg | Thr | Asn | Tyr | His |      |  |  |  |
| 170 |     |     |     |     | 175 |     |     |     |     | 180 |     |     |     | 185 |     |      |  |  |  |
| tta | cag | agg | cat | gtc | ttc | att | cat | aca | ggc | gaa | aaa | ccg | ttt | caa | tgt | 987  |  |  |  |
| Leu | Gln | Arg | His | Val | Phe | Ile | His | Thr | Gly | Glu | Lys | Pro | Phe | Gln | Cys |      |  |  |  |
|     |     |     | 190 |     |     |     |     |     | 195 |     |     |     |     | 200 |     |      |  |  |  |
| agt | caa | tgt | gac | atg | cgt | ttc | ata | cag | aag | tac | ctg | ctt | cag | aga | cac | 1035 |  |  |  |
| Ser | Gln | Cys | Asp | Met | Arg | Phe | Ile | Gln | Lys | Tyr | Leu | Leu | Gln | Arg | His |      |  |  |  |
|     |     |     | 205 |     |     |     |     | 210 |     |     |     |     |     | 215 |     |      |  |  |  |
| gag | aag | atc | cat | acc | ggt | gaa | aaa | cca | ttt | cgc | tgt | gat | gaa | tgt | ggt | 1083 |  |  |  |
| Glu | Lys | Ile | His | Thr | Gly | Glu | Lys | Pro | Phe | Arg | Cys | Asp | Glu | Cys | Gly |      |  |  |  |
|     |     |     | 220 |     |     |     |     | 225 |     |     |     |     |     | 230 |     |      |  |  |  |
| atg | aga | ttc | ata | cag | aaa | tat | cac | atg | gaa | agg | cac | aaa | aga | act | cac | 1131 |  |  |  |
| Met | Arg | Phe | Ile | Gln | Lys | Tyr | His | Met | Glu | Arg | His | Lys | Arg | Thr | His |      |  |  |  |
|     |     |     | 235 |     |     |     |     | 240 |     |     |     |     |     | 245 |     |      |  |  |  |

agt gga gag aag cct tat cag tgt gaa tac tgc tta cag tat ttt tcc 1179  
 Ser Gly Glu Lys Pro Tyr Gln Cys Glu Tyr Cys Leu Gln Tyr Phe Ser  
 250 255 260 265  
 aga aca gat cgt gta ttg aaa cat aaa cgt atg tgc cat gaa aat cac 1227  
 Arg Thr Asp Arg Val Leu Lys His Lys Arg Met Cys His Glu Asn His  
 270 275 280  
 gac aaa aaa cta aac aga tgt gcc atc aaa ggt ggc ctt ctg aca tca 1275  
 Asp Lys Lys Leu Asn Arg Cys Ala Ile Lys Gly Gly Leu Leu Thr Ser  
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 gag gaa gat tct ggc ttt tct aca tca cca aaa gat aat tca ctg cca 1323  
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 Lys Lys Lys Arg Gln Lys Thr Glu Lys Lys Ser Ser Gly Met Asp Lys  
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 Glu Ser Val Leu Asp Lys Ser Asp Leu Lys Lys Asp Lys Asn Asp Tyr  
 330 335 340 345  
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 Leu Pro Leu Tyr Ser Ser Ser Thr Lys Val Lys Asp Glu Tyr Met Val  
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 Ala Glu Tyr Ala Val Glu Met Pro His Ser Ser Val Gly Gly Ser His  
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 Leu Glu Asp Ala Ser Gly Glu Ile His Pro Pro Lys Leu Val Leu Lys  
 380 385 390  
 aaa atc aat agt aag aga agt ctg aag cag ccc ttg gag caa agt caa 1611  
 Lys Ile Asn Ser Lys Arg Ser Leu Lys Gln Pro Leu Glu Gln Ser Gln



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|---|------|-----|-----|
| 395   | 400  | 405 |     |
| acc att tca ccc cta tcc agc tat gaa gac agc aaa gtt tcc aag tac | 1659 |     |     |
| Thr Ile Ser Pro Leu Ser Ser Tyr Glu Asp Ser Lys Val Ser Lys Tyr |      |     |     |
| 410   | 415  | 420 | 425 |
| gct ttt gag ctt gtg gat aag cag gcg tta ctg gac tca gaa ggc agt | 1707 |     |     |
| Ala Phe Glu Leu Val Asp Lys Gln Ala Leu Leu Asp Ser Glu Gly Ser |      |     |     |
| 430   | 435  | 440 |     |
| gct gac atc gat caa gtg gat aac ttg cag gag ggc ccc agc aaa cct | 1755 |     |     |
| Ala Asp Ile Asp Gln Val Asp Asn Leu Gln Glu Gly Pro Ser Lys Pro |      |     |     |
| 445   | 450  | 455 |     |
| gtg cac agc agt act aat tac gac gat gcc atg cag ttt ctg aag aag | 1803 |     |     |
| Val His Ser Ser Thr Asn Tyr Asp Asp Ala Met Gln Phe Leu Lys Lys |      |     |     |
| 460   | 465  | 470 |     |
| aag cgg tat ctt caa gct gca agt aac aac agc agg gag tac gca ctg | 1851 |     |     |
| Lys Arg Tyr Leu Gln Ala Ala Ser Asn Asn Ser Arg Glu Tyr Ala Leu |      |     |     |
| 475   | 480  | 485 |     |
| aat gtg ggc acc ata gcc tct cag cct tct gtg aca caa gcc gcc gtg | 1899 |     |     |
| Asn Val Gly Thr Ile Ala Ser Gln Pro Ser Val Thr Gln Ala Ala Val |      |     |     |
| 490   | 495  | 500 | 505 |
| gcc agc gtc att gat gaa agc acc aca gca tcc ata ctg gat tcc cag | 1947 |     |     |
| Ala Ser Val Ile Asp Glu Ser Thr Thr Ala Ser Ile Leu Asp Ser Gln |      |     |     |
| 510   | 515  | 520 |     |
| gca ctg aat gtg gag att aag agc aat cat gac aaa aat gtt atc cca | 1995 |     |     |
| Ala Leu Asn Val Glu Ile Lys Ser Asn His Asp Lys Asn Val Ile Pro |      |     |     |
| 525   | 530  | 535 |     |
| gat gag gtc ctg cag act ctg ctg gat cat tat tcc cac aaa cct aat | 2043 |     |     |
| Asp Glu Val Leu Gln Thr Leu Leu Asp His Tyr Ser His Lys Pro Asn |      |     |     |
| 540   | 545  | 550 |     |
| gga cag cat gag att tcc ttc agc gtt gca gat act gaa gtg act tct | 2091 |     |     |

|   |      |
|---|------|
| Gly Gln His Glu Ile Ser Phe Ser Val Ala Asp Thr Glu Val Thr Ser |      |
| 555   | 560  |
| 565   |      |
| agc ata tca atc aat tct tcc gat gta cct gaa gtc acc cag tca gag | 2139 |
| Ser Ile Ser Ile Asn Ser Ser Asp Val Pro Glu Val Thr Gln Ser Glu |      |
| 570   | 575  |
| 580   | 585  |
| aat gtt gga tca agc tcc caa gca tcc tca tca gat aaa gct aac atg | 2187 |
| Asn Val Gly Ser Ser Ser Gln Ala Ser Ser Ser Asp Lys Ala Asn Met |      |
| 590   | 595  |
| 600   |      |
| ttg cag gaa tac tcc aag ttt ctg cag cag gct ttg gac aga act agc | 2235 |
| Leu Gln Glu Tyr Ser Lys Phe Leu Gln Gln Ala Leu Asp Arg Thr Ser |      |
| 605   | 610  |
| 615   |      |
| caa aac gat gcc tat ttg aat agc ccg agc ctt aac ttt gtg act gac | 2283 |
| Gln Asn Asp Ala Tyr Leu Asn Ser Pro Ser Leu Asn Phe Val Thr Asp |      |
| 620   | 625  |
| 630   |      |
| aac cag acc ctt cca aat ccg cca gca ttc tct tcc ata gac aag caa | 2331 |
| Asn Gln Thr Leu Pro Asn Pro Pro Ala Phe Ser Ser Ile Asp Lys Gln |      |
| 635   | 640  |
| 645   |      |
| gtc tat gca gcc atg ccc atc aat agc ttt cga tca gga atg aat tct | 2379 |
| Val Tyr Ala Ala Met Pro Ile Asn Ser Phe Arg Ser Gly Met Asn Ser |      |
| 650   | 655  |
| 660   | 665  |
| cca cta aga aca act cca gat aag tcc cac ttt gga cta ata gtc ggt | 2427 |
| Pro Leu Arg Thr Thr Pro Asp Lys Ser His Phe Gly Leu Ile Val Gly |      |
| 670   | 675  |
| 680   |      |
| gac tca cag cac ccg ttt ccc ttt tca ggt gac gag aca aac cac gcc | 2475 |
| Asp Ser Gln His Pro Phe Pro Phe Ser Gly Asp Glu Thr Asn His Ala |      |
| 685   | 690  |
| 695   |      |
| tct gcc acg tca aca gca gac ttt ttg gat caa gtc act tct cag aag | 2523 |
| Ser Ala Thr Ser Thr Ala Asp Phe Leu Asp Gln Val Thr Ser Gln Lys |      |
| 700   | 705  |
| 710   |      |

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gag cag ccc ttc cgt gct cca tat cat gga tcc aga gct gga ata gca      2619
Glu Gln Pro Phe Arg Ala Pro Tyr His Gly Ser Arg Ala Gly Ile Ala
730              735              740              745
act cag ttt agc act gcc aat gga cag gtg aac ctt cgg gga cca ggg      2667
Thr Gln Phe Ser Thr Ala Asn Gly Gln Val Asn Leu Arg Gly Pro Gly
      750              755              760
aca agt gct gaa ttt tca gaa ttt ccc ttg gtg aat gta aat gat aat      2715
Thr Ser Ala Glu Phe Ser Glu Phe Pro Leu Val Asn Val Asn Asp Asn
      765              770              775
aga gct ggg atg aca tct tca cca gat gcc aca act ggc cag act ttt      2763
Arg Ala Gly Met Thr Ser Ser Pro Asp Ala Thr Thr Gly Gln Thr Phe
      780              785              790
ggc taa      2769
Gly      795

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&lt;210&gt; 858

&lt;211&gt; 794

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 858

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Ile Asp Glu Met Gln Ser Ser Arg Ala Met Val Val Met Gly Gly Val
      20              25              30
Ser Gly Gln Ser Ala Val Ser Gly Glu Leu Gln Glu Ser Val Leu Gln

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| 50  | 55  | 60  |
| Gln Glu Ser Glu Met Arg Gln Gln Asp Met Ile Ser His Asp Glu Leu |     |     |
| 65  | 70  | 75  |
| Met Val His Glu Glu Thr Val Lys Asn Asp Glu Glu Gln Met Asp Thr |     |     |
| 85  | 90  | 95  |
| His Glu Arg Leu Pro Gln Gly Leu Gln Tyr Ala Leu Asn Val Pro Ile |     |     |
| 100   | 105 | 110 |
| Ser Val Lys Gln Glu Ile Thr Phe Thr Asp Val Ser Glu Gln Leu Met |     |     |
| 115   | 120 | 125 |
| Arg Asp Lys Lys Gln Val Arg Glu Pro Val Asp Leu Gln Lys Lys Lys |     |     |
| 130   | 135 | 140 |
| Lys Arg Lys Gln Arg Ser Pro Ala Lys Ile Leu Thr Ile Asn Glu Asp |     |     |
| 145   | 150 | 155 |
| Gly Ser Leu Gly Leu Lys Thr Pro Lys Ser His Val Cys Glu His Cys |     |     |
| 165   | 170 | 175 |
| Asn Ala Ala Phe Arg Thr Asn Tyr His Leu Gln Arg His Val Phe Ile |     |     |
| 180   | 185 | 190 |
| His Thr Gly Glu Lys Pro Phe Gln Cys Ser Gln Cys Asp Met Arg Phe |     |     |
| 195   | 200 | 205 |
| Ile Gln Lys Tyr Leu Leu Gln Arg His Glu Lys Ile His Thr Gly Glu |     |     |
| 210   | 215 | 220 |
| Lys Pro Phe Arg Cys Asp Glu Cys Gly Met Arg Phe Ile Gln Lys Tyr |     |     |
| 225   | 230 | 235 |
| His Met Glu Arg His Lys Arg Thr His Ser Gly Glu Lys Pro Tyr Gln |     |     |
| 245   | 250 | 255 |
| Cys Glu Tyr Cys Leu Gln Tyr Phe Ser Arg Thr Asp Arg Val Leu Lys |     |     |
| 260   | 265 | 270 |

His Lys Arg Met Cys His Glu Asn His Asp Lys Lys Leu Asn Arg Cys  
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 Ala Ile Lys Gly Gly Leu Leu Thr Ser Glu Glu Asp Ser Gly Phe Ser  
 290 295 300  
 Thr Ser Pro Lys Asp Asn Ser Leu Pro Lys Lys Lys Arg Gln Lys Thr  
 305 310 315 320  
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 325 330 335  
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 485 490 495  
 Gln Pro Ser Val Thr Gln Ala Ala Val Ala Ser Val Ile Asp Glu Ser

|   |     |     |
|---|-----|-----|
| 500   | 505 | 510 |
| Thr Thr Ala Ser Ile Leu Asp Ser Gln Ala Leu Asn Val Glu Ile Lys |     |     |
| 515   | 520 | 525 |
| Ser Asn His Asp Lys Asn Val Ile Pro Asp Glu Val Leu Gln Thr Leu |     |     |
| 530   | 535 | 540 |
| Leu Asp His Tyr Ser His Lys Pro Asn Gly Gln His Glu Ile Ser Phe |     |     |
| 545   | 550 | 555 |
| Ser Val Ala Asp Thr Glu Val Thr Ser Ser Ile Ser Ile Asn Ser Ser |     |     |
| 565   | 570 | 575 |
| Asp Val Pro Glu Val Thr Gln Ser Glu Asn Val Gly Ser Ser Ser Gln |     |     |
| 580   | 585 | 590 |
| Ala Ser Ser Ser Asp Lys Ala Asn Met Leu Gln Glu Tyr Ser Lys Phe |     |     |
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| Leu Gln Gln Ala Leu Asp Arg Thr Ser Gln Asn Asp Ala Tyr Leu Asn |     |     |
| 610   | 615 | 620 |
| Ser Pro Ser Leu Asn Phe Val Thr Asp Asn Gln Thr Leu Pro Asn Pro |     |     |
| 625   | 630 | 635 |
| Pro Ala Phe Ser Ser Ile Asp Lys Gln Val Tyr Ala Ala Met Pro Ile |     |     |
| 645   | 650 | 655 |
| Asn Ser Phe Arg Ser Gly Met Asn Ser Pro Leu Arg Thr Thr Pro Asp |     |     |
| 660   | 665 | 670 |
| Lys Ser His Phe Gly Leu Ile Val Gly Asp Ser Gln His Pro Phe Pro |     |     |
| 675   | 680 | 685 |
| Phe Ser Gly Asp Glu Thr Asn His Ala Ser Ala Thr Ser Thr Ala Asp |     |     |
| 690   | 695 | 700 |
| Phe Leu Asp Gln Val Thr Ser Gln Lys Lys Ala Glu Ala Gln Pro Val |     |     |
| 705   | 710 | 715 |
| His Gln Ala Tyr Gln Met Ser Ser Phe Glu Gln Pro Phe Arg Ala Pro |     |     |
| 725   | 730 | 735 |

Tyr His Gly Ser Arg Ala Gly Ile Ala Thr Gln Phe Ser Thr Ala Asn  
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 Gly Gln Val Asn Leu Arg Gly Pro Gly Thr Ser Ala Glu Phe Ser Glu  
                   755                                  760                                  765  
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<212> DNA

<213> Mus musculus

<400> 859

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| gaa cga ggt tct ggg gtt tcc aat ttt gct caa ctc att gtg aga gaa |     |     | 2001 |
| Glu Arg Gly Ser Gly Val Ser Asn Phe Ala Gln Leu Ile Val Arg Glu |     |     |      |
| 275   | 280 | 285 |      |
| cca cct aga ccc att gct cct ccc cag ctg ctt ggt gtt ggg cct act |     |     | 2049 |
| Pro Pro Arg Pro Ile Ala Pro Pro Gln Leu Leu Gly Val Gly Pro Thr |     |     |      |
| 290   | 295 | 300 | 305  |
| tac ttg ctg atc caa cta aat gcc aac tct att att ggc gat ggc ccc |     |     | 2097 |
| Tyr Leu Leu Ile Gln Leu Asn Ala Asn Ser Ile Ile Gly Asp Gly Pro |     |     |      |
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| atc atc ctg aaa gaa gta gag tat cga atg aca tca gga tct tgg aca |     |     | 2145 |
| Ile Ile Leu Lys Glu Val Glu Tyr Arg Met Thr Ser Gly Ser Trp Thr |     |     |      |
| 325   | 330 | 335 |      |
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| Glu Thr His Ala Val Asn Ala Pro Thr Tyr Lys Leu Trp His Leu Asp |     |     |      |
| 340   | 345 | 350 |      |
| cca gat aca gaa tac gag atc cgc gtc ctg ctt acc aga cct ggc gaa |     |     | 2241 |
| Pro Asp Thr Glu Tyr Glu Ile Arg Val Leu Leu Thr Arg Pro Gly Glu |     |     |      |
| 355   | 360 | 365 |      |
| ggg gga act ggg ctg cca gga cca cca ctg atc act aga acg aag tgt |     |     | 2289 |
| Gly Gly Thr Gly Leu Pro Gly Pro Pro Leu Ile Thr Arg Thr Lys Cys |     |     |      |
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| Ala Glu Pro Met Arg Thr Pro Lys Thr Leu Lys Ile Ala Glu Ile Gln |     |     |      |
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| Arg Cys His Thr Phe Asn Val Thr Ile Cys Tyr His Tyr Phe Arg Gly |      |
| 420   | 425  |
| 430   |      |
| cac aat gag agc agg gca gac tgc ttg gac atg gac ccc aaa gcc cct | 2481 |
| His Asn Glu Ser Arg Ala Asp Cys Leu Asp Met Asp Pro Lys Ala Pro |      |
| 435   | 440  |
| 445   |      |
| cag cat gtt gtg aac cat ctg cca cct tac aca aat gtc agc ctc aag | 2529 |
| Gln His Val Val Asn His Leu Pro Pro Tyr Thr Asn Val Ser Leu Lys |      |
| 450   | 455  |
| 460   | 465  |
| atg atc cta acc aac cca gag gga agg aag gag agc gaa gag aca atc | 2577 |
| Met Ile Leu Thr Asn Pro Glu Gly Arg Lys Glu Ser Glu Glu Thr Ile |      |
| 470   | 475  |
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| atc caa act gat gaa gat gtg ccc ggg cct gtg cca gtc aaa tcc ctc | 2625 |
| Ile Gln Thr Asp Glu Asp Val Pro Gly Pro Val Pro Val Lys Ser Leu |      |
| 485   | 490  |
| 495   |      |
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| Gln Gly Thr Ser Phe Glu Asn Lys Ile Phe Leu Asn Trp Lys Glu Pro |      |
| 500   | 505  |
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| Leu Glu Pro Asn Gly Ile Ile Thr Gln Tyr Glu Val Ser Tyr Ser Ser |      |
| 515   | 520  |
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| Ile Arg Ser Phe Asp Pro Ala Val Pro Val Ala Gly Pro Pro Gln Thr |      |
| 530   | 535  |
| 540   | 545  |
| gta tca aat tta tgg aat agt aca cac cat gta ttt atg cat ctt cac | 2817 |
| Val Ser Asn Leu Trp Asn Ser Thr His His Val Phe Met His Leu His |      |
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| Phe Gly Pro Ala Thr Ala Ile Asn Val Thr Thr Asn Ile Ser Ala Pro |      |
| 580 585 590   |      |
| agc tta cct gac tat gaa gga gtt gat gcc tct ctg aat gaa act gcc | 2961 |
| Ser Leu Pro Asp Tyr Glu Gly Val Asp Ala Ser Leu Asn Glu Thr Ala |      |
| 595 600 605   |      |
| acc acc atc aca gta cta ttg agg cct gca caa gcc aaa ggt gct cct | 3009 |
| Thr Thr Ile Thr Val Leu Leu Arg Pro Ala Gln Ala Lys Gly Ala Pro |      |
| 610 615 620 625   |      |
| atc agt gct tat caa att gtt gtg gag cag cta cac cca cat cga acg | 3057 |
| Ile Ser Ala Tyr Gln Ile Val Val Glu Gln Leu His Pro His Arg Thr |      |
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| aag cgt gaa gca ggg gcc atg gaa tgc tac cag gta ccg gtt aca tac | 3105 |
| Lys Arg Glu Ala Gly Ala Met Glu Cys Tyr Gln Val Pro Val Thr Tyr |      |
| 645 650 655   |      |
| cag aac gcc cta agt ggg ggc gcg ccc tat tac ttt gcc gca gaa ctt | 3153 |
| Gln Asn Ala Leu Ser Gly Gly Ala Pro Tyr Tyr Phe Ala Ala Glu Leu |      |
| 660 665 670   |      |
| ccc cct ggg aat ctt ccc gag cct gct ccc ttc acc gtg ggt gac aac | 3201 |
| Pro Pro Gly Asn Leu Pro Glu Pro Ala Pro Phe Thr Val Gly Asp Asn |      |
| 675 680 685   |      |
| cgg acc tat aaa ggc ttt tgg aac cct ccc ctg gcc ccc cgc aaa gga | 3249 |
| Arg Thr Tyr Lys Gly Phe Trp Asn Pro Pro Leu Ala Pro Arg Lys Gly |      |
| 690 695 700 705   |      |
| tac aac atc tat ttc caa gcg atg agc agt gtg gag aag gaa act aaa | 3297 |
| Tyr Asn Ile Tyr Phe Gln Ala Met Ser Ser Val Glu Lys Glu Thr Lys |      |

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| 710   | 715 | 720 |      |
| acc caa tgt gta cga att gct aca aaa gca gca gca aca gaa gaa cca |     |     | 3345 |
| Thr Gln Cys Val Arg Ile Ala Thr Lys Ala Ala Ala Thr Glu Glu Pro |     |     |      |
| 725   | 730 | 735 |      |
| gaa gtg atc cca gac ccg gca aag cag aca gac aga gtg gtg aaa atc |     |     | 3393 |
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| 740   | 745 | 750 |      |
| gcg ggc atc agt gct ggc atc cta gtg ttc atc ctt ctc ctg ctg gtt |     |     | 3441 |
| Ala Gly Ile Ser Ala Gly Ile Leu Val Phe Ile Leu Leu Leu Leu Val |     |     |      |
| 755   | 760 | 765 |      |
| gtc ata gta att gtg aaa aag agc aag ctt gct aag aag cgc aaa gat |     |     | 3489 |
| Val Ile Val Ile Val Lys Lys Ser Lys Leu Ala Lys Lys Arg Lys Asp |     |     |      |
| 770   | 775 | 780 | 785  |
| gca atg ggg aac aca cgt cag gag atg acc cac atg gtg aat gct atg |     |     | 3537 |
| Ala Met Gly Asn Thr Arg Gln Glu Met Thr His Met Val Asn Ala Met |     |     |      |
| 790   | 795 | 800 |      |
| gac cga agt tat gct gac cag agc acc ctg cat gca gaa gac ccc ctt |     |     | 3585 |
| Asp Arg Ser Tyr Ala Asp Gln Ser Thr Leu His Ala Glu Asp Pro Leu |     |     |      |
| 805   | 810 | 815 |      |
| tcc ctc acc ttc atg gac caa cat aac ttc agt cca aga ttg ccc aat |     |     | 3633 |
| Ser Leu Thr Phe Met Asp Gln His Asn Phe Ser Pro Arg Leu Pro Asn |     |     |      |
| 820   | 825 | 830 |      |
| gat cca ctt gtg ccg act gcc gtg tta gat gag aac cac agt gcc aca |     |     | 3681 |
| Asp Pro Leu Val Pro Thr Ala Val Leu Asp Glu Asn His Ser Ala Thr |     |     |      |
| 835   | 840 | 845 |      |
| gca gag tct agt cgt ctc ctg gat gtt cct cga tac ctc tgc gaa ggg |     |     | 3729 |
| Ala Glu Ser Ser Arg Leu Leu Asp Val Pro Arg Tyr Leu Cys Glu Gly |     |     |      |
| 850   | 855 | 860 | 865  |
| aca gag tcc cct tat cag aca gga cag ctg cac cca gcc atc agg gtg |     |     | 3777 |

|   |      |
|---|------|
| Thr Glu Ser Pro Tyr Gln Thr Gly Gln Leu His Pro Ala Ile Arg Val |      |
| 870   | 875  |
| 880   |      |
| gcc gac tta ctg cag cac att aac ctc atg aag aca tca gac agc tat | 3825 |
| Ala Asp Leu Leu Gln His Ile Asn Leu Met Lys Thr Ser Asp Ser Tyr |      |
| 885   | 890  |
| 895   |      |
| ggg ttc aaa gag gaa tac gag agc ttc ttt gaa ggc cag tca gcc tct | 3873 |
| Gly Phe Lys Glu Glu Tyr Glu Ser Phe Phe Glu Gly Gln Ser Ala Ser |      |
| 900   | 905  |
| 910   |      |
| tgg gat gtg gct aaa aag gat caa aac aga gca aag aac cga tac gga | 3921 |
| Trp Asp Val Ala Lys Lys Asp Gln Asn Arg Ala Lys Asn Arg Tyr Gly |      |
| 915   | 920  |
| 925   |      |
| aac att atc gca tat gat cac tcc aga gtc atc ctg caa cct gtg gaa | 3969 |
| Asn Ile Ile Ala Tyr Asp His Ser Arg Val Ile Leu Gln Pro Val Glu |      |
| 930   | 935  |
| 940   | 945  |
| gat gac cct tct tca gat tac att aat gcc aac tac atc gac att tgg | 4017 |
| Asp Asp Pro Ser Ser Asp Tyr Ile Asn Ala Asn Tyr Ile Asp Ile Trp |      |
| 950   | 955  |
| 960   |      |
| ctg tac agg gat ggc tac cag aga cca agc cac tac att gca act caa | 4065 |
| Leu Tyr Arg Asp Gly Tyr Gln Arg Pro Ser His Tyr Ile Ala Thr Gln |      |
| 965   | 970  |
| 975   |      |
| ggc cca gtt cat gaa acc gta tat gat ttt tgg agg atg gtg tgg caa | 4113 |
| Gly Pro Val His Glu Thr Val Tyr Asp Phe Trp Arg Met Val Trp Gln |      |
| 980   | 985  |
| 990   |      |
| gag cag tct gcc tgt att gtg atg gtc act aat tta gtg gaa gtt ggc | 4161 |
| Glu Gln Ser Ala Cys Ile Val Met Val Thr Asn Leu Val Glu Val Gly |      |
| 995   | 1000 |
| 1005  |      |
| cgg gtg aaa tgc tat aaa tat tgg cct gat gat act gag gtt tat ggt | 4209 |
| Arg Val Lys Cys Tyr Lys Tyr Trp Pro Asp Asp Thr Glu Val Tyr Gly |      |
| 1010  | 1015 |
| 1020  | 1025 |

|   |      |
|---|------|
| gac ttc aaa gtc acc tgc gta gaa atg gag cca ctt gct gag tat gtc | 4257 |
| Asp Phe Lys Val Thr Cys Val Glu Met Glu Pro Leu Ala Glu Tyr Val |      |
| 1030 1035 1040  |      |
| gtt agg aca ttc acc ttg gaa agg agg ggc tat aat gaa atc cgt gaa | 4305 |
| Val Arg Thr Phe Thr Leu Glu Arg Arg Gly Tyr Asn Glu Ile Arg Glu |      |
| 1045 1050 1055  |      |
| gtc aaa cag ttc cac ttc act ggc tgg cct gac cat ggt gtt cca tac | 4353 |
| Val Lys Gln Phe His Phe Thr Gly Trp Pro Asp His Gly Val Pro Tyr |      |
| 1060 1065 1070  |      |
| cac gca aca ggg ctc ctg tca ttt atc cgg aga gtc aag cta tct aac | 4401 |
| His Ala Thr Gly Leu Leu Ser Phe Ile Arg Arg Val Lys Leu Ser Asn |      |
| 1075 1080 1085  |      |
| cct ccc agt gct ggg ccc att gtc gta cac tgc agt gct ggt gct ggg | 4449 |
| Pro Pro Ser Ala Gly Pro Ile Val Val His Cys Ser Ala Gly Ala Gly |      |
| 1090 1095 1100 1105   |      |
| cgc aca ggc tgt tac att gtt att gac ata atg ctg gac atg gct gaa | 4497 |
| Arg Thr Gly Cys Tyr Ile Val Ile Asp Ile Met Leu Asp Met Ala Glu |      |
| 1110 1115 1120  |      |
| aga gag ggt gtg gtt gac atc tac aac tgt gtg aaa gcc tta cga tct | 4545 |
| Arg Glu Gly Val Val Asp Ile Tyr Asn Cys Val Lys Ala Leu Arg Ser |      |
| 1125 1130 1135  |      |
| cgg cgc att aat atg gta cag aca gag gaa cag tac att ttt att cat | 4593 |
| Arg Arg Ile Asn Met Val Gln Thr Glu Glu Gln Tyr Ile Phe Ile His |      |
| 1140 1145 1150  |      |
| gat gcc att tta gaa gcc tgc tta tgt gga gaa act gcc atc cct gtg | 4641 |
| Asp Ala Ile Leu Glu Ala Cys Leu Cys Gly Glu Thr Ala Ile Pro Val |      |
| 1155 1160 1165  |      |
| tgt gaa ttt aaa gct gca tat ttt gat atg att cga ata gac tct cag | 4689 |
| Cys Glu Phe Lys Ala Ala Tyr Phe Asp Met Ile Arg Ile Asp Ser Gln |      |

|   |      |      |      |      |
|---|------|------|------|------|
| 1170  | 1175 | 1180 | 1185 |      |
| act aac tcc tct cat ctc aaa gat gaa ttt cag act ctg aat tgc gtc |      |      |      | 4737 |
| Thr Asn Ser Ser His Leu Lys Asp Glu Phe Gln Thr Leu Asn Ser Val |      |      |      |      |
|   | 1190 | 1195 | 1200 |      |
| acc cct cga cta caa gct gaa gac tgc agc ata gcc tgc ctg cca agg |      |      |      | 4785 |
| Thr Pro Arg Leu Gln Ala Glu Asp Cys Ser Ile Ala Cys Leu Pro Arg |      |      |      |      |
|   | 1205 | 1210 | 1215 |      |
| aac cat gac aag aac cgt ttc atg gat atg ctc cca cct gac aga tgt |      |      |      | 4833 |
| Asn His Asp Lys Asn Arg Phe Met Asp Met Leu Pro Pro Asp Arg Cys |      |      |      |      |
|   | 1220 | 1225 | 1230 |      |
| ctg cct ttt tta att aca att gat ggg gag agc agt aac tac atc aat |      |      |      | 4881 |
| Leu Pro Phe Leu Ile Thr Ile Asp Gly Glu Ser Ser Asn Tyr Ile Asn |      |      |      |      |
|   | 1235 | 1240 | 1245 |      |
| gct gct ctt atg gat agc tat agg cag cca gca gct ttc atc gtc aca |      |      |      | 4929 |
| Ala Ala Leu Met Asp Ser Tyr Arg Gln Pro Ala Ala Phe Ile Val Thr |      |      |      |      |
|   | 1250 | 1255 | 1260 | 1265 |
| caa tac cca ctg cca aac act gtg aaa gac ttc tgg aga tta gta tat |      |      |      | 4977 |
| Gln Tyr Pro Leu Pro Asn Thr Val Lys Asp Phe Trp Arg Leu Val Tyr |      |      |      |      |
|   | 1270 | 1275 | 1280 |      |
| gat tac gga tgt acc tcc atc gtg atg cta aat gaa gtg gac ctg tct |      |      |      | 5025 |
| Asp Tyr Gly Cys Thr Ser Ile Val Met Leu Asn Glu Val Asp Leu Ser |      |      |      |      |
|   | 1285 | 1290 | 1295 |      |
| cag ggc tgc cca cag tac tgg cca gaa gaa gga atg ctg cga tat ggt |      |      |      | 5073 |
| Gln Gly Cys Pro Gln Tyr Trp Pro Glu Glu Gly Met Leu Arg Tyr Gly |      |      |      |      |
|   | 1300 | 1305 | 1310 |      |
| cct atc caa gtg gaa tgt atg tct tgt tca atg gac tgt gat gtg atc |      |      |      | 5121 |
| Pro Ile Gln Val Glu Cys Met Ser Cys Ser Met Asp Cys Asp Val Ile |      |      |      |      |
|   | 1315 | 1320 | 1325 |      |
| aat cga att ttt aga ata tgc aac cta acg aga cca cag gag ggc tat |      |      |      | 5169 |

Asn Arg Ile Phe Arg Ile Cys Asn Leu Thr Arg Pro Gln Glu Gly Tyr  
 1330                      1335                      1340                      1345  
 ctg atg gta caa cag ttc cag tac cta ggc tgg gct tct cat cga gaa 5217  
 Leu Met Val Gln Gln Phe Gln Tyr Leu Gly Trp Ala Ser His Arg Glu  
                     1350                      1355                      1360  
 gtg cct ggc tcc aaa cgc tcg ttt ttg aaa tgg ata ctg cag gtg gaa 5265  
 Val Pro Gly Ser Lys Arg Ser Phe Leu Lys Leu Ile Leu Gln Val Glu  
                     1365                      1370                      1375  
 aaa tgg caa gag gaa tgt gaa gaa ggg gaa ggc cgg aca atc atc cac 5313  
 Lys Trp Gln Glu Glu Cys Glu Glu Gly Glu Gly Arg Thr Ile Ile His  
                     1380                      1385                      1390  
 tgc ttg aat ggc ggt ggg cgc agt ggc atg ttc tgt gcc ata ggc att 5361  
 Cys Leu Asn Gly Gly Gly Arg Ser Gly Met Phe Cys Ala Ile Gly Ile  
                     1395                      1400                      1405  
 gtt gtg gag atg gtg aag cgg caa aat gtg gtg gat gtt ttc cat gca 5409  
 Val Val Glu Met Val Lys Arg Gln Asn Val Val Asp Val Phe His Ala  
 1410                      1415                      1420                      1425  
 gta aag acg ctg agg aac agc aag cca aac atg gtg gaa gcc ccg gag 5457  
 Val Lys Thr Leu Arg Asn Ser Lys Pro Asn Met Val Glu Ala Pro Glu  
                     1430                      1435                      1440  
 cag tat cgt ttt tgc tat gat gtg gcg tta gag tac ctg gag tcc tca 5505  
 Gln Tyr Arg Phe Cys Tyr Asp Val Ala Leu Glu Tyr Leu Glu Ser Ser  
                     1445                      1450                      1455  
 tag ttcgtgaga ctatttcag agcatccaag cagaaatcca ttcgtctgtt 5558  
 gagccagcag ctgttgtacc tgttactgca ccgagagatt ttaatgtacg ggggtgggagg 5618  
 cttttacatt ggagaggcaa atgtattttt cttataaagt tgtgtatctt aataaaaagg 5678  
 acttgatcag tttctgtgac tgtatgagag catccacatt tcatgccacc taattttatc 5738  
 tttaatcaga ggcagatttg gatgagaagt ggtctgtgtc tgtccagtga ccacacagcc 5798  
 ttttctctcc tgctttctgt agagcagcta ccacacattg catgcacttt gtaagtggca 5858



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5896

<210> 862

<211> 1457

<212> PRT

<213> Mus musculus

<400> 862

Met Asp Val Ala Ala Ala Leu Pro Ala Phe Val Ala Leu Trp Leu  
 1 5 10 15  
 Leu Tyr Pro Trp Pro Leu Leu Gly Ser Ala Leu Gly Gln Phe Ser Ala  
 20 25 30  
 Gly Gly Cys Thr Phe Asp Asp Gly Pro Gly Ala Cys Asp Tyr His Gln  
 35 40 45  
 Asp Leu Tyr Asp Asp Phe Glu Trp Val His Val Ser Ala Gln Glu Pro  
 50 55 60  
 His Tyr Leu Pro Pro Glu Met Pro Gln Gly Ser Tyr Met Val Val Asp  
 65 70 75 80  
 Ser Ser Asn His Asp Pro Gly Glu Lys Ala Arg Leu Gln Leu Pro Thr  
 85 90 95  
 Met Lys Glu Asn Asp Thr His Cys Ile Asp Phe Ser Tyr Leu Leu Tyr  
 100 105 110  
 Ser Gln Lys Gly Leu Asn Pro Gly Thr Leu Asn Ile Leu Val Arg Val  
 115 120 125  
 Asn Lys Gly Pro Leu Ala Asn Pro Ile Trp Asn Val Thr Gly Phe Thr  
 130 135 140  
 Gly Arg Asp Trp Leu Arg Ala Glu Leu Ala Val Ser Thr Phe Trp Pro  
 145 150 155 160  
 Asn Glu Tyr Gln Val Ile Phe Glu Ala Glu Val Ser Gly Gly Arg Ser

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 165 |     | 170 |     | 175 |
| Gly Tyr Ile Ala Ile Asp Asp Ile Gln Val Leu Ser Tyr Pro Cys Asp |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Lys Ser Pro His Phe Leu Arg Leu Gly Asp Val Glu Val Asn Ala Gly |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |
| Gln Asn Ala Thr Phe Gln Cys Ile Ala Thr Gly Arg Asp Ala Val His |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |
| Asn Lys Leu Trp Leu Gln Arg Arg Asn Gly Glu Asp Ile Pro Val Ala |     |     |     |     |     |
| 225   |     | 230 |     | 235 | 240 |
| Gln Thr Lys Asn Ile Asn His Arg Arg Phe Ala Ala Ser Phe Arg Leu |     |     |     |     |     |
|   | 245 |     | 250 |     | 255 |
| Gln Glu Val Thr Lys Thr Asp Gln Asp Leu Tyr Arg Cys Val Thr Gln |     |     |     |     |     |
|   | 260 |     | 265 |     | 270 |
| Ser Glu Arg Gly Ser Gly Val Ser Asn Phe Ala Gln Leu Ile Val Arg |     |     |     |     |     |
|   | 275 |     | 280 |     | 285 |
| Glu Pro Pro Arg Pro Ile Ala Pro Pro Gln Leu Leu Gly Val Gly Pro |     |     |     |     |     |
|   | 290 |     | 295 |     | 300 |
| Thr Tyr Leu Leu Ile Gln Leu Asn Ala Asn Ser Ile Ile Gly Asp Gly |     |     |     |     |     |
| 305   |     | 310 |     | 315 | 320 |
| Pro Ile Ile Leu Lys Glu Val Glu Tyr Arg Met Thr Ser Gly Ser Trp |     |     |     |     |     |
|   | 325 |     | 330 |     | 335 |
| Thr Glu Thr His Ala Val Asn Ala Pro Thr Tyr Lys Leu Trp His Leu |     |     |     |     |     |
|   | 340 |     | 345 |     | 350 |
| Asp Pro Asp Thr Glu Tyr Glu Ile Arg Val Leu Leu Thr Arg Pro Gly |     |     |     |     |     |
|   | 355 |     | 360 |     | 365 |
| Glu Gly Gly Thr Gly Leu Pro Gly Pro Pro Leu Ile Thr Arg Thr Lys |     |     |     |     |     |
|   | 370 |     | 375 |     | 380 |
| Cys Ala Glu Pro Met Arg Thr Pro Lys Thr Leu Lys Ile Ala Glu Ile |     |     |     |     |     |
| 385   |     | 390 |     | 395 | 400 |

Gln Ala Arg Arg Ile Ala Val Asp Trp Glu Ser Leu Gly Tyr Asn Ile  
 405 410 415  
 Thr Arg Cys His Thr Phe Asn Val Thr Ile Cys Tyr His Tyr Phe Arg  
 420 425 430  
 Gly His Asn Glu Ser Arg Ala Asp Cys Leu Asp Met Asp Pro Lys Ala  
 435 440 445  
 Pro Gln His Val Val Asn His Leu Pro Pro Tyr Thr Asn Val Ser Leu  
 450 455 460  
 Lys Met Ile Leu Thr Asn Pro Glu Gly Arg Lys Glu Ser Glu Glu Thr  
 465 470 475 480  
 Ile Ile Gln Thr Asp Glu Asp Val Pro Gly Pro Val Pro Val Lys Ser  
 485 490 495  
 Leu Gln Gly Thr Ser Phe Glu Asn Lys Ile Phe Leu Asn Trp Lys Glu  
 500 505 510  
 Pro Leu Glu Pro Asn Gly Ile Ile Thr Gln Tyr Glu Val Ser Tyr Ser  
 515 520 525  
 Ser Ile Arg Ser Phe Asp Pro Ala Val Pro Val Ala Gly Pro Pro Gln  
 530 535 540  
 Thr Val Ser Asn Leu Trp Asn Ser Thr His His Val Phe Met His Leu  
 545 550 555 560  
 His Pro Gly Thr Thr Tyr Gln Phe Phe Ile Arg Ala Ser Thr Val Lys  
 565 570 575  
 Gly Phe Gly Pro Ala Thr Ala Ile Asn Val Thr Thr Asn Ile Ser Ala  
 580 585 590  
 Pro Ser Leu Pro Asp Tyr Glu Gly Val Asp Ala Ser Leu Asn Glu Thr  
 595 600 605  
 Ala Thr Thr Ile Thr Val Leu Leu Arg Pro Ala Gln Ala Lys Gly Ala  
 610 615 620  
 Pro Ile Ser Ala Tyr Gln Ile Val Val Glu Gln Leu His Pro His Arg

625                      630                      635                      640  
 Thr Lys Arg Glu Ala Gly Ala Met Glu Cys Tyr Gln Val Pro Val Thr  
                     645                      650                      655  
 Tyr Gln Asn Ala Leu Ser Gly Gly Ala Pro Tyr Tyr Phe Ala Ala Glu  
                     660                      665                      670  
 Leu Pro Pro Gly Asn Leu Pro Glu Pro Ala Pro Phe Thr Val Gly Asp  
                     675                      680                      685  
 Asn Arg Thr Tyr Lys Gly Phe Trp Asn Pro Pro Leu Ala Pro Arg Lys  
                     690                      695                      700  
 Gly Tyr Asn Ile Tyr Phe Gln Ala Met Ser Ser Val Glu Lys Glu Thr  
 705                      710                      715                      720  
 Lys Thr Gln Cys Val Arg Ile Ala Thr Lys Ala Ala Ala Thr Glu Glu  
                     725                      730                      735  
 Pro Glu Val Ile Pro Asp Pro Ala Lys Gln Thr Asp Arg Val Val Lys  
                     740                      745                      750  
 Ile Ala Gly Ile Ser Ala Gly Ile Leu Val Phe Ile Leu Leu Leu Leu  
                     755                      760                      765  
 Val Val Ile Val Ile Val Lys Lys Ser Lys Leu Ala Lys Lys Arg Lys  
                     770                      775                      780  
 Asp Ala Met Gly Asn Thr Arg Gln Glu Met Thr His Met Val Asn Ala  
 785                      790                      795                      800  
 Met Asp Arg Ser Tyr Ala Asp Gln Ser Thr Leu His Ala Glu Asp Pro  
                     805                      810                      815  
 Leu Ser Leu Thr Phe Met Asp Gln His Asn Phe Ser Pro Arg Leu Pro  
                     820                      825                      830  
 Asn Asp Pro Leu Val Pro Thr Ala Val Leu Asp Glu Asn His Ser Ala  
                     835                      840                      845  
 Thr Ala Glu Ser Ser Arg Leu Leu Asp Val Pro Arg Tyr Leu Cys Glu  
                     850                      855                      860

Gly Thr Glu Ser Pro Tyr Gln Thr Gly Gln Leu His Pro Ala Ile Arg  
 865 870 875 880  
 Val Ala Asp Leu Leu Gln His Ile Asn Leu Met Lys Thr Ser Asp Ser  
 885 890 895  
 Tyr Gly Phe Lys Glu Glu Tyr Glu Ser Phe Phe Glu Gly Gln Ser Ala  
 900 905 910  
 Ser Trp Asp Val Ala Lys Lys Asp Gln Asn Arg Ala Lys Asn Arg Tyr  
 915 920 925  
 Gly Asn Ile Ile Ala Tyr Asp His Ser Arg Val Ile Leu Gln Pro Val  
 930 935 940  
 Glu Asp Asp Pro Ser Ser Asp Tyr Ile Asn Ala Asn Tyr Ile Asp Ile  
 945 950 955 960  
 Trp Leu Tyr Arg Asp Gly Tyr Gln Arg Pro Ser His Tyr Ile Ala Thr  
 965 970 975  
 Gln Gly Pro Val His Glu Thr Val Tyr Asp Phe Trp Arg Met Val Trp  
 980 985 990  
 Gln Glu Gln Ser Ala Cys Ile Val Met Val Thr Asn Leu Val Glu Val  
 995 1000 1005  
 Gly Arg Val Lys Cys Tyr Lys Tyr Trp Pro Asp Asp Thr Glu Val Tyr  
 1010 1015 1020  
 Gly Asp Phe Lys Val Thr Cys Val Glu Met Glu Pro Leu Ala Glu Tyr  
 1025 1030 1035 1040  
 Val Val Arg Thr Phe Thr Leu Glu Arg Arg Gly Tyr Asn Glu Ile Arg  
 1045 1050 1055  
 Glu Val Lys Gln Phe His Phe Thr Gly Trp Pro Asp His Gly Val Pro  
 1060 1065 1070  
 Tyr His Ala Thr Gly Leu Leu Ser Phe Ile Arg Arg Val Lys Leu Ser  
 1075 1080 1085  
 Asn Pro Pro Ser Ala Gly Pro Ile Val Val His Cys Ser Ala Gly Ala

|   |                                 |           |
|---|---------------------------------|-----------|
| 1090  | 1095                            | 1100      |
| Gly Arg Thr Gly Cys Tyr Ile Val                                 | Ile Asp Ile Met Leu Asp Met Ala |           |
| 105   | 1110                            | 1115 1120 |
| Glu Arg Glu Gly Val Val Asp Ile Tyr Asn Cys Val Lys Ala Leu Arg |                                 |           |
| 1125  | 1130                            | 1135      |
| Ser Arg Arg Ile Asn Met Val Gln Thr Glu Glu Gln Tyr Ile Phe Ile |                                 |           |
| 1140  | 1145                            | 1150      |
| His Asp Ala Ile Leu Glu Ala Cys Leu Cys Gly Glu Thr Ala Ile Pro |                                 |           |
| 1155  | 1160                            | 1165      |
| Val Cys Glu Phe Lys Ala Ala Tyr Phe Asp Met Ile Arg Ile Asp Ser |                                 |           |
| 1170  | 1175                            | 1180      |
| Gln Thr Asn Ser Ser His Leu Lys Asp Glu Phe Gln Thr Leu Asn Ser |                                 |           |
| 185   | 1190                            | 1195 1200 |
| Val Thr Pro Arg Leu Gln Ala Glu Asp Cys Ser Ile Ala Cys Leu Pro |                                 |           |
| 1205  | 1210                            | 1215      |
| Arg Asn His Asp Lys Asn Arg Phe Met Asp Met Leu Pro Pro Asp Arg |                                 |           |
| 1220  | 1225                            | 1230      |
| Cys Leu Pro Phe Leu Ile Thr Ile Asp Gly Glu Ser Ser Asn Tyr Ile |                                 |           |
| 1235  | 1240                            | 1245      |
| Asn Ala Ala Leu Met Asp Ser Tyr Arg Gln Pro Ala Ala Phe Ile Val |                                 |           |
| 1250  | 1255                            | 1260      |
| Thr Gln Tyr Pro Leu Pro Asn Thr Val Lys Asp Phe Trp Arg Leu Val |                                 |           |
| 265   | 1270                            | 1275 1280 |
| Tyr Asp Tyr Gly Cys Thr Ser Ile Val Met Leu Asn Glu Val Asp Leu |                                 |           |
| 1285  | 1290                            | 1295      |
| Ser Gln Gly Cys Pro Gln Tyr Trp Pro Glu Glu Gly Met Leu Arg Tyr |                                 |           |
| 1300  | 1305                            | 1310      |
| Gly Pro Ile Gln Val Glu Cys Met Ser Cys Ser Met Asp Cys Asp Val |                                 |           |
| 1315  | 1320                            | 1325      |

Ile Asn Arg Ile Phe Arg Ile Cys Asn Leu Thr Arg Pro Gln Glu Gly  
 1330 1335 1340  
 Tyr Leu Met Val Gln Gln Phe Gln Tyr Leu Gly Trp Ala Ser His Arg  
 345 1350 1355 1360  
 Glu Val Pro Gly Ser Lys Arg Ser Phe Leu Lys Leu Ile Leu Gln Val  
 1365 1370 1375  
 Glu Lys Trp Gln Glu Glu Cys Glu Glu Gly Glu Gly Arg Thr Ile Ile  
 1380 1385 1390  
 His Cys Leu Asn Gly Gly Gly Arg Ser Gly Met Phe Cys Ala Ile Gly  
 1395 1400 1405  
 Ile Val Val Glu Met Val Lys Arg Gln Asn Val Val Asp Val Phe His  
 1410 1415 1420  
 Ala Val Lys Thr Leu Arg Asn Ser Lys Pro Asn Met Val Glu Ala Pro  
 425 1430 1435 1440  
 Glu Gln Tyr Arg Phe Cys Tyr Asp Val Ala Leu Glu Tyr Leu Glu Ser  
 1445 1450 1455  
 Ser

<210> 863

<211> 521

<212> DNA

<213> Mus musculus

<400> 863

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 atgttgctga agatttagtg gaaaagctga gaaagtctg ttttcgaaaa gaaaccaca 120  
 atgctgctat tataatgaag attgacaagg atgaacgcct ggtggctgctg gatgaggagc 180  
 tcgagggtgt ctctccagat gaacttaaag acgaactacc cgagcggcac gctnctgttc 240  
 atttgttata gttataaata ccaacatgat gatggcagag tctcgtaccc gctctgtcttt 300

attttctcca gtcctgtcgg gigtgaagcct gagcagcaga tgatgtacgc tgggagtaag 360  
 aaccagctaa tccagactgc cgaacttaac aaggtaattg aaattagaaa cactggagat 420  
 ccaacttaag aattgttacg ttagaaactt ggaattttcc ctatgtgaa ctctggtttc 480  
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<210> 864

<211> 3892

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (292).. (3207)

<400> 864

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 gcccgcgccgc gcccgcaccc ggctcggctc ccgccggctc gcgccgctcc gcagcggagc 180  
 ccgcaggcga ggagaggccg cgcgcacatc cagggtaccc tcagaggcca gaagagggtg 240  
 tcagagccct tgtaactgga gtttgacggt cgtgagctgc gcacattcac c atg gca 297

Met Ala

1

gac gat gat ccc tac gga act ggg caa atg ttt cat ttg aac act gct 345  
 Asp Asp Asp Pro Tyr Gly Thr Gly Gln Met Phe His Leu Asn Thr Ala

5

10

15

ttg act cac tca ata ttt aat gca gaa tta tat tca cca gaa ata cca 393  
 Leu Thr His Ser Ile Phe Asn Ala Glu Leu Tyr Ser Pro Glu Ile Pro

20

25

30

ctg tca aca gat ggc cca tac ctt caa ata tta gag caa cca aaa cag 441



2117/2644



|   |     |     |      |
|---|-----|-----|------|
| 340   | 345 | 350 |      |
| gag gaa gtg caa agg aaa cgc cag aag ctt atg ccg aac ttc tcg gac |     |     | 1401 |
| Glu Glu Val Gln Arg Lys Arg Gln Lys Leu Met Pro Asn Phe Ser Asp |     |     |      |
| 355   | 360 | 365 | 370  |
| agc ttc ggc ggc ggc agt gga gcg gga gcc ggt ggt gga ggc atg ttc |     |     | 1449 |
| Ser Phe Gly Gly Gly Ser Gly Ala Gly Ala Gly Gly Gly Gly Met Phe |     |     |      |
|   | 375 | 380 | 385  |
| ggt agt ggc ggt ggc gga ggg agt acc gga agc cct ggc cca ggg tat |     |     | 1497 |
| Gly Ser Gly Gly Gly Gly Gly Ser Thr Gly Ser Pro Gly Pro Gly Tyr |     |     |      |
|   | 390 | 395 | 400  |
| ggc tac tcg aac tac gga ttt cct ccc tac ggt ggg att aca ttc cat |     |     | 1545 |
| Gly Tyr Ser Asn Tyr Gly Phe Pro Pro Tyr Gly Gly Ile Thr Phe His |     |     |      |
|   | 405 | 410 | 415  |
| ccc gga gtc acg aaa tcc aac gca ggg gtc acc cat ggc acc ata aac |     |     | 1593 |
| Pro Gly Val Thr Lys Ser Asn Ala Gly Val Thr His Gly Thr Ile Asn |     |     |      |
|   | 420 | 425 | 430  |
| acc aaa ttt aaa aat ggc cct aaa gat tgt gcc aag agt gat gac gag |     |     | 1641 |
| Thr Lys Phe Lys Asn Gly Pro Lys Asp Cys Ala Lys Ser Asp Asp Glu |     |     |      |
| 435   | 440 | 445 | 450  |
| gag agt ctg act ctc cct gag aag gaa act gaa ggt gaa ggg ccc agc |     |     | 1689 |
| Glu Ser Leu Thr Leu Pro Glu Lys Glu Thr Glu Gly Glu Gly Pro Ser |     |     |      |
|   | 455 | 460 | 465  |
| ctg ccc atg gcc tgc acc aag acg gaa ccc atc gcc ttg gca tcc acc |     |     | 1737 |
| Leu Pro Met Ala Cys Thr Lys Thr Glu Pro Ile Ala Leu Ala Ser Thr |     |     |      |
|   | 470 | 475 | 480  |
| atg gaa gac aag gag cag gac atg gga ttt cag gat aac ctc ttt ctc |     |     | 1785 |
| Met Glu Asp Lys Glu Gln Asp Met Gly Phe Gln Asp Asn Leu Phe Leu |     |     |      |
|   | 485 | 490 | 495  |
| gag aag gct ctg cag ctc gcc agg cga cac gcc aac gcc ctt ttc gac |     |     | 1833 |

Glu Lys Ala Leu Gln Leu Ala Arg Arg His Ala Asn Ala Leu Phe Asp  
 500 505 510  
 tac gca gtg acg ggg gat gtg aag atg ttg ctg gcc gtg caa cgc cat 1881  
 Tyr Ala Val Thr Gly Asp Val Lys Met Leu Leu Ala Val Gln Arg His  
 515 520 525 530  
 ctc acc gcc gtg cag gat gag aat ggg gac agt gtc tta cac tta gcc 1929  
 Leu Thr Ala Val Gln Asp Glu Asn Gly Asp Ser Val Leu His Leu Ala  
 535 540 545  
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 Ile Ile His Leu His Ala Gln Leu Val Arg Asp Leu Leu Glu Val Thr  
 550 555 560  
 tct ggt ttg atc tct gat gac atc atc aac atg aga aat gac ctg tat 2025  
 Ser Gly Leu Ile Ser Asp Asp Ile Ile Asn Met Arg Asn Asp Leu Tyr  
 565 570 575  
 cag aca cct ctg cac ttg gcc gtg atc acc aag cag gaa gat gta gta 2073  
 Gln Thr Pro Leu His Leu Ala Val Ile Thr Lys Gln Glu Asp Val Val  
 580 585 590  
 gag gat ttg ctg agg gtt ggg gct gac ctg agc ctt ctg gac cgc tgg 2121  
 Glu Asp Leu Leu Arg Val Gly Ala Asp Leu Ser Leu Leu Asp Arg Trp  
 595 600 605 610  
 ggc aac tct gtc ctg cac cta gct gcc aaa gaa gga cac gac aga atc 2169  
 Gly Asn Ser Val Leu His Leu Ala Ala Lys Glu Gly His Asp Arg Ile  
 615 620 625  
 ctc agc atc ctg ctc aag agc aga aaa gca gcg ccc ctt atc gac cac 2217  
 Leu Ser Ile Leu Leu Lys Ser Arg Lys Ala Ala Pro Leu Ile Asp His  
 630 635 640  
 ccc aat ggg gaa ggt cta aat gcc atc cac ata gct gtg atg agc aat 2265  
 Pro Asn Gly Glu Gly Leu Asn Ala Ile His Ile Ala Val Met Ser Asn  
 645 650 655

agc ctg cca tgt ctg ctg ctg ctg gtg gct gcc ggg gca gaa gtc aat 2313  
 Ser Leu Pro Cys Leu Leu Leu Leu Val Ala Ala Gly Ala Glu Val Asn  
 660 665 670  
 gct cag gag cag aag tct ggg cgc acg ccg ctg cac ctg gcc gtg gag 2361  
 Ala Gln Glu Gln Lys Ser Gly Arg Thr Pro Leu His Leu Ala Val Glu  
 675 680 685 690  
 tac gac aac atc tcc ttg gct ggc tgc ctg ctt ctg gag ggt gat gcc 2409  
 Tyr Asp Asn Ile Ser Leu Ala Gly Cys Leu Leu Leu Glu Gly Asp Ala  
 695 700 705  
 cac gtg gac agt acc acc tat gat ggg act aca cct ctg cat ata gcg 2457  
 His Val Asp Ser Thr Thr Tyr Asp Gly Thr Thr Pro Leu His Ile Ala  
 710 715 720  
 gcc gga aga ggg tcc acc aga ctg gca gct ctt ctc aaa gca gca gga 2505  
 Ala Gly Arg Gly Ser Thr Arg Leu Ala Ala Leu Leu Lys Ala Ala Gly  
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 gca gac ccc ctg gtg gag aac ttt gag cct ctc tat gac ctg gac gac 2553  
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 740 745 750  
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 Ser Trp Glu Lys Ala Gly Glu Asp Glu Gly Val Val Pro Gly Thr Thr  
 755 760 765 770  
 ccc ctg gac atg gct gcc aac tgg cag gta ttt gac ata cta aat ggg 2649  
 Pro Leu Asp Met Ala Ala Asn Trp Gln Val Phe Asp Ile Leu Asn Gly  
 775 780 785  
 aaa ccg tat gag cct gtg ttc aca tct gat gat ata cta cca caa ggg 2697  
 Lys Pro Tyr Glu Pro Val Phe Thr Ser Asp Asp Ile Leu Pro Gln Gly  
 790 795 800  
 gac atg aag cag ctg aca gaa gac acg agg cta caa ctc tgc aaa ctg 2745  
 Asp Met Lys Gln Leu Thr Glu Asp Thr Arg Leu Gln Leu Cys Lys Leu

|   |     |     |      |
|---|-----|-----|------|
| 805   | 810 | 815 |      |
| ctg gaa att cct gat cca gac aaa aac tgg gcc act ctg gca cag aag |     |     | 2793 |
| Leu Glu Ile Pro Asp Pro Asp Lys Asn Trp Ala Thr Leu Ala Gln Lys |     |     |      |
| 820   | 825 | 830 |      |
| ttg ggt ctg ggg ata ttg aac aat gcc ttc cgg ctg agt cct gct cct |     |     | 2841 |
| Leu Gly Leu Gly Ile Leu Asn Asn Ala Phe Arg Leu Ser Pro Ala Pro |     |     |      |
| 835   | 840 | 845 | 850  |
| tct aaa act ctc atg gac aac tat gag gtc tct ggg ggt acc atc aaa |     |     | 2889 |
| Ser Lys Thr Leu Met Asp Asn Tyr Glu Val Ser Gly Gly Thr Ile Lys |     |     |      |
| 855   | 860 | 865 |      |
| gag ctg atg gag gcc ctg caa cag atg ggc tac aca gag gcc att gaa |     |     | 2937 |
| Glu Leu Met Glu Ala Leu Gln Gln Met Gly Tyr Thr Glu Ala Ile Glu |     |     |      |
| 870   | 875 | 880 |      |
| gtg atc cag gca gcc ttc cgc acc ccg gca acc aca gcc tcc agc ccc |     |     | 2985 |
| Val Ile Gln Ala Ala Phe Arg Thr Pro Ala Thr Thr Ala Ser Ser Pro |     |     |      |
| 885   | 890 | 895 |      |
| gtg acc act gct cag gtc cac tgt ctg cct ctc tcg tct tcc tcc acg |     |     | 3033 |
| Val Thr Thr Ala Gln Val His Cys Leu Pro Leu Ser Ser Ser Ser Thr |     |     |      |
| 900   | 905 | 910 |      |
| agg cag cac ata gat gaa ctc cgg gat agt gac agc gtc tgt gac agt |     |     | 3081 |
| Arg Gln His Ile Asp Glu Leu Arg Asp Ser Asp Ser Val Cys Asp Ser |     |     |      |
| 915   | 920 | 925 | 930  |
| ggt gtg gag aca tcc ttc cgc aaa ctc agc ttt aca gag tct ctt act |     |     | 3129 |
| Gly Val Glu Thr Ser Phe Arg Lys Leu Ser Phe Thr Glu Ser Leu Thr |     |     |      |
| 935   | 940 | 945 |      |
| gga gac agc cca ctg cta tct ctg aac aaa atg ccc cac ggt tat ggg |     |     | 3177 |
| Gly Asp Ser Pro Leu Leu Ser Leu Asn Lys Met Pro His Gly Tyr Gly |     |     |      |
| 950   | 955 | 960 |      |
| cag gaa gga cct att gaa ggc aaa att tag cctgctggcc gtccccccac   |     |     | 3227 |

Gln Glu Gly Pro Ile Glu Gly Lys Ile

965

970

actgtgtaaa ccaaagccct gacagtcctat tgcctcgtcc caaaggagga aggcaaagcg 3287  
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ccgaatttgg cgtccttctt ggctctgaaa tgaaatgtag ttgccacgca cagacgggtgt 3407  
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atgcgcaata aaaaaaaga catttctttt tttaatgttg ttatctgtg atttaaaaaat 3707  
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tttccccgtt ttatgcattt tacatttgta aatatgtttt ctaatcaata ctttaaaaga 3827  
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tgact 3892

<210> 865

<211> 971

<212> PRT

<213> Mus musculus

<400> 865

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Thr Ala Leu Thr His Ser Ile Phe Asn Ala Glu Leu Tyr Ser Pro Glu  
20 25 30  
Ile Pro Leu Ser Thr Asp Gly Pro Tyr Leu Gln Ile Leu Glu Gln Pro  
35 40 45  
Lys Gln Arg Gly Phe Arg Phe Arg Tyr Val Cys Glu Gly Pro Ser His  
50 55 60

2124/2644



|   |     |     |
|---|-----|-----|
| 290   | 295 | 300 |
| Arg Gln Phe Ala Ile Val Phe Lys Thr Pro Lys Tyr Lys Asp Val Asn |     |     |
| 305   | 310 | 315 |
| Ile Thr Lys Pro Ala Ser Val Phe Val Gln Leu Arg Arg Lys Ser Asp |     | 320 |
|   | 325 | 330 |
| Leu Glu Thr Ser Glu Pro Lys Pro Phe Leu Tyr Tyr Pro Glu Ile Lys |     | 335 |
|   | 340 | 345 |
| Asp Lys Glu Glu Val Gln Arg Lys Arg Gln Lys Leu Met Pro Asn Phe |     | 350 |
|   | 355 | 360 |
| Ser Asp Ser Phe Gly Gly Gly Ser Gly Ala Gly Ala Gly Gly Gly Gly |     | 365 |
|   | 370 | 375 |
| Met Phe Gly Ser Gly Gly Gly Gly Gly Ser Thr Gly Ser Pro Gly Pro |     | 380 |
| 385   | 390 | 395 |
| Gly Tyr Gly Tyr Ser Asn Tyr Gly Phe Pro Pro Tyr Gly Gly Ile Thr |     | 400 |
|   | 405 | 410 |
| Phe His Pro Gly Val Thr Lys Ser Asn Ala Gly Val Thr His Gly Thr |     | 415 |
|   | 420 | 425 |
| Ile Asn Thr Lys Phe Lys Asn Gly Pro Lys Asp Cys Ala Lys Ser Asp |     | 430 |
|   | 435 | 440 |
| Asp Glu Glu Ser Leu Thr Leu Pro Glu Lys Glu Thr Glu Gly Glu Gly |     | 445 |
|   | 450 | 455 |
| Pro Ser Leu Pro Met Ala Cys Thr Lys Thr Glu Pro Ile Ala Leu Ala |     | 460 |
| 465   | 470 | 475 |
| Ser Thr Met Glu Asp Lys Glu Gln Asp Met Gly Phe Gln Asp Asn Leu |     | 480 |
|   | 485 | 490 |
| Phe Leu Glu Lys Ala Leu Gln Leu Ala Arg Arg His Ala Asn Ala Leu |     | 495 |
|   | 500 | 505 |
| Phe Asp Tyr Ala Val Thr Gly Asp Val Lys Met Leu Leu Ala Val Gln |     | 510 |
|   | 515 | 520 |
|   |     | 525 |

Arg His Leu Thr Ala Val Gln Asp Glu Asn Gly Asp Ser Val Leu His  
 530 535 540  
 Leu Ala Ile Ile His Leu His Ala Gln Leu Val Arg Asp Leu Leu Glu  
 545 550 555 560  
 Val Thr Ser Gly Leu Ile Ser Asp Asp Ile Ile Asn Met Arg Asn Asp  
 565 570 575  
 Leu Tyr Gln Thr Pro Leu His Leu Ala Val Ile Thr Lys Gln Glu Asp  
 580 585 590  
 Val Val Glu Asp Leu Leu Arg Val Gly Ala Asp Leu Ser Leu Leu Asp  
 595 600 605  
 Arg Trp Gly Asn Ser Val Leu His Leu Ala Ala Lys Glu Gly His Asp  
 610 615 620  
 Arg Ile Leu Ser Ile Leu Leu Lys Ser Arg Lys Ala Ala Pro Leu Ile  
 625 630 635 640  
 Asp His Pro Asn Gly Glu Gly Leu Asn Ala Ile His Ile Ala Val Met  
 645 650 655  
 Ser Asn Ser Leu Pro Cys Leu Leu Leu Leu Val Ala Ala Gly Ala Glu  
 660 665 670  
 Val Asn Ala Gln Glu Gln Lys Ser Gly Arg Thr Pro Leu His Leu Ala  
 675 680 685  
 Val Glu Tyr Asp Asn Ile Ser Leu Ala Gly Cys Leu Leu Leu Glu Gly  
 690 695 700  
 Asp Ala His Val Asp Ser Thr Thr Tyr Asp Gly Thr Thr Pro Leu His  
 705 710 715 720  
 Ile Ala Ala Gly Arg Gly Ser Thr Arg Leu Ala Ala Leu Leu Lys Ala  
 725 730 735  
 Ala Gly Ala Asp Pro Leu Val Glu Asn Phe Glu Pro Leu Tyr Asp Leu  
 740 745 750  
 Asp Asp Ser Trp Glu Lys Ala Gly Glu Asp Glu Gly Val Val Pro Gly

|   |     |     |
|---|-----|-----|
| 755   | 760 | 765 |
| Thr Thr Pro Leu Asp Met Ala Ala Asn Trp Gln Val Phe Asp Ile Leu |     |     |
| 770   | 775 | 780 |
| Asn Gly Lys Pro Tyr Glu Pro Val Phe Thr Ser Asp Asp Ile Leu Pro |     |     |
| 785   | 790 | 795 |
| Gln Gly Asp Met Lys Gln Leu Thr Glu Asp Thr Arg Leu Gln Leu Cys |     |     |
| 805   | 810 | 815 |
| Lys Leu Leu Glu Ile Pro Asp Pro Asp Lys Asn Trp Ala Thr Leu Ala |     |     |
| 820   | 825 | 830 |
| Gln Lys Leu Gly Leu Gly Ile Leu Asn Asn Ala Phe Arg Leu Ser Pro |     |     |
| 835   | 840 | 845 |
| Ala Pro Ser Lys Thr Leu Met Asp Asn Tyr Glu Val Ser Gly Gly Thr |     |     |
| 850   | 855 | 860 |
| Ile Lys Glu Leu Met Glu Ala Leu Gln Gln Met Gly Tyr Thr Glu Ala |     |     |
| 865   | 870 | 875 |
| Ile Glu Val Ile Gln Ala Ala Phe Arg Thr Pro Ala Thr Thr Ala Ser |     |     |
| 885   | 890 | 895 |
| Ser Pro Val Thr Thr Ala Gln Val His Cys Leu Pro Leu Ser Ser Ser |     |     |
| 900   | 905 | 910 |
| Ser Thr Arg Gln His Ile Asp Glu Leu Arg Asp Ser Asp Ser Val Cys |     |     |
| 915   | 920 | 925 |
| Asp Ser Gly Val Glu Thr Ser Phe Arg Lys Leu Ser Phe Thr Glu Ser |     |     |
| 930   | 935 | 940 |
| Leu Thr Gly Asp Ser Pro Leu Leu Ser Leu Asn Lys Met Pro His Gly |     |     |
| 945   | 950 | 955 |
| Tyr Gly Gln Glu Gly Pro Ile Glu Gly Lys Ile                     |     |     |
| 965   | 970 |     |

&lt;210&gt; 866

&lt;211&gt; 2174

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (481).. (1881)

&lt;400&gt; 866

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gttcgggtga tcaccaggaa agcccctgaa aggcctagca ctccaatta gtaacaggac 180
tgtgcttgat accctacagc cctggaggaa ggctcgaggg gagctccctc cccaccccc 240
cttctcact tctttccggg tccccattgg ctggctcgct cggcggctag gatggcagtg 300
ggaggggacc ctctttccta acagtgttat aaaagcagcg cccttggcgt tgtccagtcc 360
tctgccactc ttgctccggg accccagaga cccagcgct cctacgattc acagccaccg 420
cgccctcatt cccttggtgc agtttttcca gccgcagcaa gccagcccac cticgaagcc 480
atg tct acc agg tct gtg tcc tgg tcc tcc tac cgc agg atg ttc ggt 528
Met Ser Thr Arg Ser Val Ser Ser Ser Ser Tyr Arg Arg Met Phe Gly
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ggc tcc ggc aca tgc agc cgg ccc agc tcc aac cgg agc tat gtg acc 576
Gly Ser Gly Thr Ser Ser Arg Pro Ser Ser Asn Arg Ser Tyr Val Thr
              20              25              30
acg tcc aca cgc acc tac agt ctg ggc agc gca ctg cgc ccc agc act 624
Thr Ser Thr Arg Thr Tyr Ser Leu Gly Ser Ala Leu Arg Pro Ser Thr
              35              40              45
agc cgc agc ctc tat tcc tca tcc ccc ggt ggc gcc tat gtg acc cgg 672
Ser Arg Ser Leu Tyr Ser Ser Ser Pro Gly Gly Ala Tyr Val Thr Arg
      50              55              60

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|  |      |
|--|------|
| tcc tcg gca gtg cgc ctg cgg agc agc gtg ccg ggc gtg cgg ctg ctt  | 720  |
| Ser Ser Ala Val Arg Leu Arg Ser Ser Val Pro Gly Val Arg Leu Leu  |      |
| 65                                      70                                      75                                      80     |      |
| caa gac tcg gtg gac ttc tcg ctg gcc gac gcc atc aac act gag ttc  | 768  |
| Gln Asp Ser Val Asp Phe Ser Leu Ala Asp Ala Ile Asn Thr Glu Phe  |      |
| 85                                      90                                      95   |      |
| aag aac acc cgc acc aac gag aag gta gaa ctg cag gag ctg aat gac  | 816  |
| Lys Asn Thr Arg Thr Asn Glu Lys Val Glu Leu Gln Glu Leu Asn Asp  |      |
| 100                                      105                                      110  |      |
| cgc ttt gcc aac tac atc gac aag gtg cgc ttc ctc gag cag cag aac  | 864  |
| Arg Phe Ala Asn Tyr Ile Asp Lys Val Arg Phe Leu Glu Gln Gln Asn  |      |
| 115                                      120                                      125  |      |
| aaa atc ctg ctg gct gag ctc gag cag ctc aag ggc cag ggc aag tcg  | 912  |
| Lys Ile Leu Leu Ala Glu Leu Glu Gln Leu Lys Gly Gln Gly Lys Ser  |      |
| 130                                      135                                      140  |      |
| cgc ctg ggc gac ctg tac gag gag gag atg cgg gag ctg cgc cgg cag  | 960  |
| Arg Leu Gly Asp Leu Tyr Glu Glu Glu Met Arg Glu Leu Arg Arg Gln  |      |
| 145                                      150                                      155                                      160 |      |
| gtg gat cag ctc acc aac gac aag gcc cgt gtc gag gtg gag cgg gac  | 1008 |
| Val Asp Gln Leu Thr Asn Asp Lys Ala Arg Val Glu Val Glu Arg Asp  |      |
| 165                                      170                                      175  |      |
| aac ctg gcc gag gac atc atg cgg ctg cga gag aaa ttg cag gag gag  | 1056 |
| Asn Leu Ala Glu Asp Ile Met Arg Leu Arg Glu Lys Leu Gln Glu Glu  |      |
| 180                                      185                                      190  |      |
| atg ctc cag aga gag gaa gcc gaa agc acc ctg cag tca ttc aga cag  | 1104 |
| Met Leu Gln Arg Glu Glu Ala Glu Ser Thr Leu Gln Ser Phe Arg Gln  |      |
| 195                                      200                                      205  |      |
| gat gtt gac aat gct tct ctg gca cgt ctt gac ctt gaa cgg aaa gtg  | 1152 |
| Asp Val Asp Asn Ala Ser Leu Ala Arg Leu Asp Leu Glu Arg Lys Val  |      |

|  |     |     |     |
|--|-----|-----|-----|
| 210  | 215 | 220 |     |
| gaa tcc ttg cag gaa gaa att gcc ttt ttg aag aaa ctg cac gat gaa 1200 |     |     |     |
| Glu Ser Leu Gln Glu Glu Ile Ala Phe Leu Lys Lys Leu His Asp Glu      |     |     |     |
| 225  | 230 | 235 | 240 |
| gag atc cag gag ctg cag gcc cag att cag gaa cag cat gtc cag atc 1248 |     |     |     |
| Glu Ile Gln Glu Leu Gln Ala Gln Ile Gln Glu Gln His Val Gln Ile      |     |     |     |
| 245  | 250 | 255 |     |
| gat gtg gac gtt tcc aag cct gac ctc act gct gcc ctg cgt gat gtg 1296 |     |     |     |
| Asp Val Asp Val Ser Lys Pro Asp Leu Thr Ala Ala Leu Arg Asp Val      |     |     |     |
| 260  | 265 | 270 |     |
| cgc cag cag tat gaa agc gtg gct gcc aag aac ctc cag gag gcc gag 1344 |     |     |     |
| Arg Gln Gln Tyr Glu Ser Val Ala Ala Lys Asn Leu Gln Glu Ala Glu      |     |     |     |
| 275  | 280 | 285 |     |
| gaa tgg tac aag tcc aag ttt gct gac ctc tct gag gct gcc aac cgg 1392 |     |     |     |
| Glu Trp Tyr Lys Ser Lys Phe Ala Asp Leu Ser Glu Ala Ala Asn Arg      |     |     |     |
| 290  | 295 | 300 |     |
| aac aac gat gcc ctg cgc cag gcc aag cag gag tca aac gag tac cgg 1440 |     |     |     |
| Asn Asn Asp Ala Leu Arg Gln Ala Lys Gln Glu Ser Asn Glu Tyr Arg      |     |     |     |
| 305  | 310 | 315 | 320 |
| aga cag gtg cag tca ctc acc tgt gaa gtg gat gcc ctt aaa ggc act 1488 |     |     |     |
| Arg Gln Val Gln Ser Leu Thr Cys Glu Val Asp Ala Leu Lys Gly Thr      |     |     |     |
| 325  | 330 | 335 |     |
| aac gag tcc ctg gag cgc cag atg cgt gag atg gaa gag aat ttt gcc 1536 |     |     |     |
| Asn Glu Ser Leu Glu Arg Gln Met Arg Glu Met Glu Glu Asn Phe Ala      |     |     |     |
| 340  | 345 | 350 |     |
| ctt gaa gct gct aac tac cag gac act att ggc cgc ctg cag gat gag 1584 |     |     |     |
| Leu Glu Ala Ala Asn Tyr Gln Asp Thr Ile Gly Arg Leu Gln Asp Glu      |     |     |     |
| 355  | 360 | 365 |     |
| atc caa aac atg aag gaa gag atg gct cgt cac ctt cgt gaa tac caa 1632 |     |     |     |

Ile Gln Asn Met Lys Glu Glu Met Ala Arg His Leu Arg Glu Tyr Gln  
 370 375 380  
 gat ctg ctc aat gtt aag atg gcc ctg gac att gag atc gcc acc tac 1680  
 Asp Leu Leu Asn Val Lys Met Ala Leu Asp Ile Glu Ile Ala Thr Tyr  
 385 390 395 400  
 agg aag ctg ctg gaa ggc gag gag agc agg att tct ctg cct ctg cca 1728  
 Arg Lys Leu Leu Glu Gly Glu Glu Ser Arg Ile Ser Leu Pro Leu Pro  
 405 410 415  
 acc ttt tct tcc ctg aac ctg aga gaa act aac ctg gag tca ctt cct 1776  
 Thr Phe Ser Ser Leu Asn Leu Arg Glu Thr Asn Leu Glu Ser Leu Pro  
 420 425 430  
 ctg gtt gac acc cac tca aaa aga aca ctc ctg att aag acg gtt gag 1824  
 Leu Val Asp Thr His Ser Lys Arg Thr Leu Leu Ile Lys Thr Val Glu  
 435 440 445  
 acc aga gat gga cag gtg atc aat gag act tct cag cat cac gat gac 1872  
 Thr Arg Asp Gly Gln Val Ile Asn Glu Thr Ser Gln His His Asp Asp  
 450 455 460  
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 Leu Glu  
 465  
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 caggagcgca agatagattt ggaatagaaa gaagctcagc acttaacaac tgacacccca 2041  
 aaagcgtaga aaaggtttac aaaataatct agtttacgaa gaaatcttgt gctagaatac 2101  
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&lt;210&gt; 867

&lt;211&gt; 466

&lt;212&gt; PRT

<213> *Mus musculus*

&lt;400&gt; 867

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 20 25 30  
 Thr Ser Thr Arg Thr Tyr Ser Leu Gly Ser Ala Leu Arg Pro Ser Thr  
 35 40 45  
 Ser Arg Ser Leu Tyr Ser Ser Ser Pro Gly Gly Ala Tyr Val Thr Arg  
 50 55 60  
 Ser Ser Ala Val Arg Leu Arg Ser Ser Val Pro Gly Val Arg Leu Leu  
 65 70 75 80  
 Gln Asp Ser Val Asp Phe Ser Leu Ala Asp Ala Ile Asn Thr Glu Phe  
 85 90 95  
 Lys Asn Thr Arg Thr Asn Glu Lys Val Glu Leu Gln Glu Leu Asn Asp  
 100 105 110  
 Arg Phe Ala Asn Tyr Ile Asp Lys Val Arg Phe Leu Glu Gln Gln Asn  
 115 120 125  
 Lys Ile Leu Leu Ala Glu Leu Glu Gln Leu Lys Gly Gln Gly Lys Ser  
 130 135 140  
 Arg Leu Gly Asp Leu Tyr Glu Glu Glu Met Arg Glu Leu Arg Arg Gln  
 145 150 155 160  
 Val Asp Gln Leu Thr Asn Asp Lys Ala Arg Val Glu Val Glu Arg Asp  
 165 170 175  
 Asn Leu Ala Glu Asp Ile Met Arg Leu Arg Glu Lys Leu Gln Glu Glu  
 180 185 190  
 Met Leu Gln Arg Glu Glu Ala Glu Ser Thr Leu Gln Ser Phe Arg Gln  
 195 200 205



Asp Val Asp Asn Ala Ser Leu Ala Arg Leu Asp Leu Glu Arg Lys Val  
 210 215 220  
 Glu Ser Leu Gln Glu Glu Ile Ala Phe Leu Lys Lys Leu His Asp Glu  
 225 230 235 240  
 Glu Ile Gln Glu Leu Gln Ala Gln Ile Gln Glu Gln His Val Gln Ile  
 245 250 255  
 Asp Val Asp Val Ser Lys Pro Asp Leu Thr Ala Ala Leu Arg Asp Val  
 260 265 270  
 Arg Gln Gln Tyr Glu Ser Val Ala Ala Lys Asn Leu Gln Glu Ala Glu  
 275 280 285  
 Glu Trp Tyr Lys Ser Lys Phe Ala Asp Leu Ser Glu Ala Ala Asn Arg  
 290 295 300  
 Asn Asn Asp Ala Leu Arg Gln Ala Lys Gln Glu Ser Asn Glu Tyr Arg  
 305 310 315 320  
 Arg Gln Val Gln Ser Leu Thr Cys Glu Val Asp Ala Leu Lys Gly Thr  
 325 330 335  
 Asn Glu Ser Leu Glu Arg Gln Met Arg Glu Met Glu Glu Asn Phe Ala  
 340 345 350  
 Leu Glu Ala Ala Asn Tyr Gln Asp Thr Ile Gly Arg Leu Gln Asp Glu  
 355 360 365  
 Ile Gln Asn Met Lys Glu Glu Met Ala Arg His Leu Arg Glu Tyr Gln  
 370 375 380  
 Asp Leu Leu Asn Val Lys Met Ala Leu Asp Ile Glu Ile Ala Thr Tyr  
 385 390 395 400  
 Arg Lys Leu Leu Glu Gly Glu Glu Ser Arg Ile Ser Leu Pro Leu Pro  
 405 410 415  
 Thr Phe Ser Ser Leu Asn Leu Arg Glu Thr Asn Leu Glu Ser Leu Pro  
 420 425 430  
 Leu Val Asp Thr His Ser Lys Arg Thr Leu Leu Ile Lys Thr Val Glu

435 440 445  
 Thr Arg Asp Gly Gln Val Ile Asn Glu Thr Ser Gln His His Asp Asp

450 455 460

Leu Glu

465

<210> 868

<211> 1722

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (60).. (1448)

<400> 868

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 atg gga aag gaa aag act cac atc aac atc gtc gta atc gga cac gta 107  
 Met Gly Lys Glu Lys Thr His Ile Asn Ile Val Val Ile Gly His Val  
 1 5 10 15  
 gat tcc ggc aag tcc acc aca acc ggc cac ctg atc tac aaa tgt ggc 155  
 Asp Ser Gly Lys Ser Thr Thr Thr Gly His Leu Ile Tyr Lys Cys Gly  
 20 25 30  
 gga atc gac aag cga acc atc gaa aag ttt gag aag gag gct gct gag 203  
 Gly Ile Asp Lys Arg Thr Ile Glu Lys Phe Glu Lys Glu Ala Ala Glu  
 35 40 45  
 atg gga aag ggc tcc ttc aag tac gcc tgg gtc tta gac aaa ctg aaa 251  
 Met Gly Lys Gly Ser Phe Lys Tyr Ala Trp Val Leu Asp Lys Leu Lys  
 50 55 60

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gct gag cgt gag cgt ggt atc act att gac atc tcc ctg tgg aaa ttc      299
Ala Glu Arg Glu Arg Gly Ile Thr Ile Asp Ile Ser Leu Trp Lys Phe
   65                      70                      75                      80
gag acc agc aaa tac tat gtg acc atc att gat gcc cca gga cac aga      347
Glu Thr Ser Lys Tyr Tyr Val Thr Ile Ile Asp Ala Pro Gly His Arg
           85                      90                      95
gac ttc atc aaa aac atg att aca ggc aca tcc cag gct gac tgt gct      395
Asp Phe Ile Lys Asn Met Ile Thr Gly Thr Ser Gln Ala Asp Cys Ala
       100                      105                      110
gtc ctg att gtt gct gct ggt gtt ggt gaa ttt gaa gct ggt atc tcc      443
Val Leu Ile Val Ala Ala Gly Val Gly Glu Phe Glu Ala Gly Ile Ser
       115                      120                      125
aag aac ggg cag acc cgc gag cat gct ctt ctg gct tac acc ctg ggt      491
Lys Asn Gly Gln Thr Arg Glu His Ala Leu Leu Ala Tyr Thr Leu Gly
       130                      135                      140
gtg aaa cag ctg att gtt ggt gtc aac aaa atg gat tcc acc gag cca      539
Val Lys Gln Leu Ile Val Gly Val Asn Lys Met Asp Ser Thr Glu Pro
       145                      150                      155                      160
cca tac agt cag aag aga tac gag gaa atc gtt aag gaa gtc agc acc      587
Pro Tyr Ser Gln Lys Arg Tyr Glu Glu Ile Val Lys Glu Val Ser Thr
           165                      170                      175
tac att aag aaa att ggc tac aac cct gac aca gta gca ttt gtg cca      635
Tyr Ile Lys Lys Ile Gly Tyr Asn Pro Asp Thr Val Ala Phe Val Pro
       180                      185                      190
att tct ggt tgg aat gga gac aac atg ctg gag cca agt gct aat atg      683
Ile Ser Gly Trp Asn Gly Asp Asn Met Leu Glu Pro Ser Ala Asn Met
       195                      200                      205
cct tgg ttc aag gga tgg aaa gtc acg cgc aaa gat ggg cat gcc agt      731
Pro Trp Phe Lys Gly Trp Lys Val Thr Arg Lys Asp Gly His Ala Ser

```

|   |     |     |      |
|---|-----|-----|------|
| 210   | 215 | 220 |      |
| ggc acc acg ctg ctg gaa gct ttg gat tgt atc cta cca cca act cgt |     |     | 779  |
| Gly Thr Thr Leu Leu Glu Ala Leu Asp Cys Ile Leu Pro Pro Thr Arg |     |     |      |
| 225   | 230 | 235 | 240  |
| cca act gac aag ccc ctg cga ctg ccc ctc cag gat gtc tat aaa att |     |     | 827  |
| Pro Thr Asp Lys Pro Leu Arg Leu Pro Leu Gln Asp Val Tyr Lys Ile |     |     |      |
| 245   | 250 | 255 |      |
| gga ggc att ggc act gtc cct gtg ggc cga gtg gag act ggt gtt ctc |     |     | 875  |
| Gly Gly Ile Gly Thr Val Pro Val Gly Arg Val Glu Thr Gly Val Leu |     |     |      |
| 260   | 265 | 270 |      |
| aag cct ggc atg gtg gtt acc ttt gct cca gtc aat gta aca act gaa |     |     | 923  |
| Lys Pro Gly Met Val Val Thr Phe Ala Pro Val Asn Val Thr Thr Glu |     |     |      |
| 275   | 280 | 285 |      |
| gtc aag tct gtt gaa atg cat cat gaa gct ttg agt gaa gct ctt cct |     |     | 971  |
| Val Lys Ser Val Glu Met His His Glu Ala Leu Ser Glu Ala Leu Pro |     |     |      |
| 290   | 295 | 300 |      |
| ggg gac aat gtg ggc ttc aat gta aag aac gtg tcg gtc aaa gat gtt |     |     | 1019 |
| Gly Asp Asn Val Gly Phe Asn Val Lys Asn Val Ser Val Lys Asp Val |     |     |      |
| 305   | 310 | 315 | 320  |
| aga cga ggc aat gtt gct ggt gac agc aaa aac gac cca cca atg gaa |     |     | 1067 |
| Arg Arg Gly Asn Val Ala Gly Asp Ser Lys Asn Asp Pro Pro Met Glu |     |     |      |
| 325   | 330 | 335 |      |
| gca gct ggc ttc act gct cag gtg att atc ctg aac cat cca ggc caa |     |     | 1115 |
| Ala Ala Gly Phe Thr Ala Gln Val Ile Ile Leu Asn His Pro Gly Gln |     |     |      |
| 340   | 345 | 350 |      |
| atc agt gct ggc tac gct cct gtt ctg gat tgt cac aca gcc cac ata |     |     | 1163 |
| Ile Ser Ala Gly Tyr Ala Pro Val Leu Asp Cys His Thr Ala His Ile |     |     |      |
| 355   | 360 | 365 |      |
| gca tgc aag ttt gct gag ctt aaa gaa aag atc gat cgt cgt tct ggt |     |     | 1211 |

Ala Cys Lys Phe Ala Glu Leu Lys Glu Lys Ile Asp Arg Arg Ser Gly  
 370 375 380  
 aag aag ctg gaa gat ggc ccc aag ttc ctg aag tct ggc gat gct gcc 1259  
 Lys Lys Leu Glu Asp Gly Pro Lys Phe Leu Lys Ser Gly Asp Ala Ala  
 385 390 395 400  
 att gtt gat atg gtc cct ggc aag ccc atg tgt gtt gag agc ttc tct 1307  
 Ile Val Asp Met Val Pro Gly Lys Pro Met Cys Val Glu Ser Phe Ser  
 405 410 415  
 gac tac cct cca ctt ggt cgc ttt gct gtt cgc gac atg agg cag aca 1355  
 Asp Tyr Pro Pro Leu Gly Arg Phe Ala Val Arg Asp Met Arg Gln Thr  
 420 425 430  
 gtt gct gtg ggt gtc atc aaa gct gtg gac aag aag gct gct gga gct 1403  
 Val Ala Val Gly Val Ile Lys Ala Val Asp Lys Lys Ala Ala Gly Ala  
 435 440 445  
 ggc aaa gtc acc aag tct gcc cag aaa gct cag aag gct aaa tga 1448  
 Gly Lys Val Thr Lys Ser Ala Gln Lys Ala Gln Lys Ala Lys  
 450 455 460  
 atattacccc taacacctgc caccacagtc ttaatcagtg gtggaagaac ggtctcagaa 1508  
 ctgtttgtct caattggcca ttttaagttta atagtaaaac actggttaat gataacaatg 1568  
 catcgtaaaa ccttcagaag gaaagaatgt tgtggacat tttttttgtg tgtggcagtt 1628  
 ttaagttatt agttttcaaa atcagtactt ttttaatggaa acaacttgac caaaatctgt 1688  
 cacagatttt gagaccatta aacaaggttt aatg 1722

&lt;210&gt; 869

&lt;211&gt; 462

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 869

Met Gly Lys Glu Lys Thr His Ile Asn Ile Val Val Ile Gly His Val  
 1 5 10 15  
 Asp Ser Gly Lys Ser Thr Thr Thr Gly His Leu Ile Tyr Lys Cys Gly  
 20 25 30  
 Gly Ile Asp Lys Arg Thr Ile Glu Lys Phe Glu Lys Glu Ala Ala Glu  
 35 40 45  
 Met Gly Lys Gly Ser Phe Lys Tyr Ala Trp Val Leu Asp Lys Leu Lys  
 50 55 60  
 Ala Glu Arg Glu Arg Gly Ile Thr Ile Asp Ile Ser Leu Trp Lys Phe  
 65 70 75 80  
 Glu Thr Ser Lys Tyr Tyr Val Thr Ile Ile Asp Ala Pro Gly His Arg  
 85 90 95  
 Asp Phe Ile Lys Asn Met Ile Thr Gly Thr Ser Gln Ala Asp Cys Ala  
 100 105 110  
 Val Leu Ile Val Ala Ala Gly Val Gly Glu Phe Glu Ala Gly Ile Ser  
 115 120 125  
 Lys Asn Gly Gln Thr Arg Glu His Ala Leu Leu Ala Tyr Thr Leu Gly  
 130 135 140  
 Val Lys Gln Leu Ile Val Gly Val Asn Lys Met Asp Ser Thr Glu Pro  
 145 150 155 160  
 Pro Tyr Ser Gln Lys Arg Tyr Glu Glu Ile Val Lys Glu Val Ser Thr  
 165 170 175  
 Tyr Ile Lys Lys Ile Gly Tyr Asn Pro Asp Thr Val Ala Phe Val Pro  
 180 185 190  
 Ile Ser Gly Trp Asn Gly Asp Asn Met Leu Glu Pro Ser Ala Asn Met  
 195 200 205  
 Pro Trp Phe Lys Gly Trp Lys Val Thr Arg Lys Asp Gly His Ala Ser  
 210 215 220  
 Gly Thr Thr Leu Leu Glu Ala Leu Asp Cys Ile Leu Pro Pro Thr Arg

|   |                 |                                 |     |
|---|-----------------|---------------------------------|-----|
| 225   | 230             | 235                             | 240 |
| Pro Thr Asp Lys   | Pro Leu Arg Leu | Pro Leu Gln Asp Val Tyr Lys Ile |     |
| 245   | 250             | 255                             |     |
| Gly Gly Ile Gly Thr Val Pro Val Gly Arg Val Glu Thr Gly Val Leu |                 |                                 |     |
| 260   | 265             | 270                             |     |
| Lys Pro Gly Met Val Val Thr Phe Ala Pro Val Asn Val Thr Thr Glu |                 |                                 |     |
| 275   | 280             | 285                             |     |
| Val Lys Ser Val Glu Met His His Glu Ala Leu Ser Glu Ala Leu Pro |                 |                                 |     |
| 290   | 295             | 300                             |     |
| Gly Asp Asn Val Gly Phe Asn Val Lys Asn Val Ser Val Lys Asp Val |                 |                                 |     |
| 305   | 310             | 315                             | 320 |
| Arg Arg Gly Asn Val Ala Gly Asp Ser Lys Asn Asp Pro Pro Met Glu |                 |                                 |     |
| 325   | 330             | 335                             |     |
| Ala Ala Gly Phe Thr Ala Gln Val Ile Ile Leu Asn His Pro Gly Gln |                 |                                 |     |
| 340   | 345             | 350                             |     |
| Ile Ser Ala Gly Tyr Ala Pro Val Leu Asp Cys His Thr Ala His Ile |                 |                                 |     |
| 355   | 360             | 365                             |     |
| Ala Cys Lys Phe Ala Glu Leu Lys Glu Lys Ile Asp Arg Arg Ser Gly |                 |                                 |     |
| 370   | 375             | 380                             |     |
| Lys Lys Leu Glu Asp Gly Pro Lys Phe Leu Lys Ser Gly Asp Ala Ala |                 |                                 |     |
| 385   | 390             | 395                             | 400 |
| Ile Val Asp Met Val Pro Gly Lys Pro Met Cys Val Glu Ser Phe Ser |                 |                                 |     |
| 405   | 410             | 415                             |     |
| Asp Tyr Pro Pro Leu Gly Arg Phe Ala Val Arg Asp Met Arg Gln Thr |                 |                                 |     |
| 420   | 425             | 430                             |     |
| Val Ala Val Gly Val Ile Lys Ala Val Asp Lys Lys Ala Ala Gly Ala |                 |                                 |     |
| 435   | 440             | 445                             |     |
| Gly Lys Val Thr Lys Ser Ala Gln Lys Ala Gln Lys Ala Lys         |                 |                                 |     |
| 450   | 455             | 460                             |     |

&lt;210&gt; 870

&lt;211&gt; 1766

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (220).. (1380)

&lt;400&gt; 870

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gctctagaac tagtggatcc ggcaacgaag gtaccatggt ttcattgttc gcggtaggcc 60
gggctttttt tgtgtaatcg ctgccaaaga agaaagcgaa gtagcctccg gtcaagcgag 120
gaggccggct cttccgcagc catagcccgc ctcaaggatt tgggaggtag cgaagggcag 180
ggagctggac cctgaggtgc cgccgcgacc gcagcagcc atg gag gac gag atg      234
                                     Met Glu Asp Glu Met
                                     1           5
ccc aag act cta tac gtc ggt aac ctt tct cga gat gtg aca gaa gct      282
Pro Lys Thr Leu Tyr Val Gly Asn Leu Ser Arg Asp Val Thr Glu Ala
                10                15                20
ctc atc ctc cag ctc ttt agc cag att gga cct tgt aaa aac tgc aaa      330
Leu Ile Leu Gln Leu Phe Ser Gln Ile Gly Pro Cys Lys Asn Cys Lys
                25                30                35
atg att atg gat aca gca gga aat gac cca tac tgt ttt gtg gag ttc      378
Met Ile Met Asp Thr Ala Gly Asn Asp Pro Tyr Cys Phe Val Glu Phe
                40                45                50
cat gag cac cgt cat gca gct gca gcc ctg gct gcc atg aat ggg cgg      426
His Glu His Arg His Ala Ala Ala Ala Leu Ala Ala Met Asn Gly Arg
                55                60                65

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aag ata atg ggt aag gaa gtg aaa gtg aat tgg gca aca acc cct agc 474  
Lys Ile Met Gly Lys Glu Val Lys Val Asn Trp Ala Thr Thr Pro Ser  
70 75 80 85  
agt caa aag aag gat acg agc agt agt acc gtt gtc agc aca cag cgt 522  
Ser Gln Lys Lys Asp Thr Ser Ser Ser Thr Val Val Ser Thr Gln Arg  
90 95 100  
tca caa gat cat ttc cat gtg ttt gtt ggt gac ctc agt cca gaa atc 570  
Ser Gln Asp His Phe His Val Phe Val Gly Asp Leu Ser Pro Glu Ile  
105 110 115  
aca acc gaa gac atc aaa gca gcg ttt gca cca ttt gga aga att tca 618  
Thr Thr Glu Asp Ile Lys Ala Ala Phe Ala Pro Phe Gly Arg Ile Ser  
120 125 130  
gat gcc cgt gtg gta aaa gac atg gct acc ggg aag tct aag gga tat 666  
Asp Ala Arg Val Val Lys Asp Met Ala Thr Gly Lys Ser Lys Gly Tyr  
135 140 145  
ggc ttt gtc tcc ttt ttc aac aaa tgg gat gca gaa aat gcc att cag 714  
Gly Phe Val Ser Phe Phe Asn Lys Trp Asp Ala Glu Asn Ala Ile Gln  
150 155 160 165  
cag atg ggt ggc cag tgg ctt ggt gga aga caa atc aga act aac tgg 762  
Gln Met Gly Gly Gln Trp Leu Gly Gly Arg Gln Ile Arg Thr Asn Trp  
170 175 180  
gca acc cga aag cct cca gct cca aag agt aca tat gag tcg aac acc 810  
Ala Thr Arg Lys Pro Pro Ala Pro Lys Ser Thr Tyr Glu Ser Asn Thr  
185 190 195  
aaa cag ctg tca tat gat gag gtt gtg agt cag tct agt ccc aac aac 858  
Lys Gln Leu Ser Tyr Asp Glu Val Val Ser Gln Ser Ser Pro Asn Asn  
200 205 210  
tgc act gtg tac tgt gga ggg gtg acg tca gga ctg aca gaa caa cta 906  
Cys Thr Val Tyr Cys Gly Gly Val Thr Ser Gly Leu Thr Glu Gln Leu

|   |     |     |      |
|---|-----|-----|------|
| 215   | 220 | 225 |      |
| atg cgt cag act ttt tct cca ttt gga caa ata atg gaa att cga gtc |     |     | 954  |
| Met Arg Gln Thr Phe Ser Pro Phe Gly Gln Ile Met Glu Ile Arg Val |     |     |      |
| 230   | 235 | 240 | 245  |
| ttc cca gat aaa gga tac tca ttt gtt cgg ttc agt tcc cat gaa agt |     |     | 1002 |
| Phe Pro Asp Lys Gly Tyr Ser Phe Val Arg Phe Ser Ser His Glu Ser |     |     |      |
| 250   | 255 | 260 |      |
| gca gca cat gcg att gtt tct gtt aat ggt act acc att gaa ggg cat |     |     | 1050 |
| Ala Ala His Ala Ile Val Ser Val Asn Gly Thr Thr Ile Glu Gly His |     |     |      |
| 265   | 270 | 275 |      |
| gtg gtg aaa tgt tat tgg ggc aaa gag act ctt gat atg ata aac cct |     |     | 1098 |
| Val Val Lys Cys Tyr Trp Gly Lys Glu Thr Leu Asp Met Ile Asn Pro |     |     |      |
| 280   | 285 | 290 |      |
| gtg caa cag caa aat caa att gga tat cca cca aca tat ggc cag tgg |     |     | 1146 |
| Val Gln Gln Gln Asn Gln Ile Gly Tyr Pro Pro Thr Tyr Gly Gln Trp |     |     |      |
| 295   | 300 | 305 |      |
| ggc cag tgg tat gga aat gca caa cag att ggc cag tat gtg cct aac |     |     | 1194 |
| Gly Gln Trp Tyr Gly Asn Ala Gln Gln Ile Gly Gln Tyr Val Pro Asn |     |     |      |
| 310   | 315 | 320 | 325  |
| ggt tgg caa gta cct gcc tat gga gtg tat ggc cag cca tgg agc cag |     |     | 1242 |
| Gly Trp Gln Val Pro Ala Tyr Gly Val Tyr Gly Gln Pro Trp Ser Gln |     |     |      |
| 330   | 335 | 340 |      |
| cag ggg ttc aat cag acc cag tct tct gca ccg tgg atg gga ccc aat |     |     | 1290 |
| Gln Gly Phe Asn Gln Thr Gln Ser Ser Ala Pro Trp Met Gly Pro Asn |     |     |      |
| 345   | 350 | 355 |      |
| tac agt gtg cca cca cct caa ggg cag aat ggc agc atg ttg cct agt |     |     | 1338 |
| Tyr Ser Val Pro Pro Pro Gln Gly Gln Asn Gly Ser Met Leu Pro Ser |     |     |      |
| 360   | 365 | 370 |      |
| cag cct gct ggg tat cga gtg gcc ggg tat gaa acc cag tga         |     |     | 1380 |

Gln Pro Ala Gly Tyr Arg Val Ala Gly Tyr Glu Thr Gln

375

380

385

aaacagacta cagaacggaa gccagtgcgt tgaagcaggg agggtaggaa aactgttggt 1440  
 tacgtaaaga tttatcaaat cagtcagtac aaattgccag atacaatgta tttattttaaa 1500  
 agattcattt ttttaatcat gaaattactt ttcattccaca ttgtttttaaa aaggaacacg 1560  
 atgggtgatg ttgccaatt ttgtctcctt cattatcttt ttgataaag tttctcagat 1620  
 ccttgtttca aagacaaatg cagggattac tgccaccttt ttaaaaataa gaggcagaaa 1680  
 attgcacaat gtigaacttt tctccactaa aatcgtgtgc agtttttagtt tgcattcctg 1740  
 ataggattta aaacatgtaa tataga 1766

&lt;210&gt; 871

&lt;211&gt; 386

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 871

Met Glu Asp Glu Met Pro Lys Thr Leu Tyr Val Gly Asn Leu Ser Arg

1

5

10

15

Asp Val Thr Glu Ala Leu Ile Leu Gln Leu Phe Ser Gln Ile Gly Pro

20

25

30

Cys Lys Asn Cys Lys Met Ile Met Asp Thr Ala Gly Asn Asp Pro Tyr

35

40

45

Cys Phe Val Glu Phe His Glu His Arg His Ala Ala Ala Ala Leu Ala

50

55

60

Ala Met Asn Gly Arg Lys Ile Met Gly Lys Glu Val Lys Val Asn Trp

65

70

75

80

Ala Thr Thr Pro Ser Ser Gln Lys Lys Asp Thr Ser Ser Ser Thr Val

85

90

95

Val Ser Thr Gln Arg Ser Gln Asp His Phe His Val Phe Val Gly Asp

|   |     |     |
|---|-----|-----|
| 100   | 105 | 110 |
| Leu Ser Pro Glu Ile Thr Thr Glu Asp Ile Lys Ala Ala Phe Ala Pro |     |     |
| 115   | 120 | 125 |
| Phe Gly Arg Ile Ser Asp Ala Arg Val Val Lys Asp Met Ala Thr Gly |     |     |
| 130   | 135 | 140 |
| Lys Ser Lys Gly Tyr Gly Phe Val Ser Phe Phe Asn Lys Trp Asp Ala |     |     |
| 145   | 150 | 155 |
| Glu Asn Ala Ile Gln Gln Met Gly Gly Gln Trp Leu Gly Gly Arg Gln |     |     |
| 165   | 170 | 175 |
| Ile Arg Thr Asn Trp Ala Thr Arg Lys Pro Pro Ala Pro Lys Ser Thr |     |     |
| 180   | 185 | 190 |
| Tyr Glu Ser Asn Thr Lys Gln Leu Ser Tyr Asp Glu Val Val Ser Gln |     |     |
| 195   | 200 | 205 |
| Ser Ser Pro Asn Asn Cys Thr Val Tyr Cys Gly Gly Val Thr Ser Gly |     |     |
| 210   | 215 | 220 |
| Leu Thr Glu Gln Leu Met Arg Gln Thr Phe Ser Pro Phe Gly Gln Ile |     |     |
| 225   | 230 | 235 |
| Met Glu Ile Arg Val Phe Pro Asp Lys Gly Tyr Ser Phe Val Arg Phe |     |     |
| 245   | 250 | 255 |
| Ser Ser His Glu Ser Ala Ala His Ala Ile Val Ser Val Asn Gly Thr |     |     |
| 260   | 265 | 270 |
| Thr Ile Glu Gly His Val Val Lys Cys Tyr Trp Gly Lys Glu Thr Leu |     |     |
| 275   | 280 | 285 |
| Asp Met Ile Asn Pro Val Gln Gln Gln Asn Gln Ile Gly Tyr Pro Pro |     |     |
| 290   | 295 | 300 |
| Thr Tyr Gly Gln Trp Gly Gln Trp Tyr Gly Asn Ala Gln Gln Ile Gly |     |     |
| 305   | 310 | 315 |
| Gln Tyr Val Pro Asn Gly Trp Gln Val Pro Ala Tyr Gly Val Tyr Gly |     |     |
| 325   | 330 | 335 |

Gln Pro Trp Ser Gln Gln Gly Phe Asn Gln Thr Gln Ser Ser Ala Pro  
                   340                  345                  350  
 Trp Met Gly Pro Asn Tyr Ser Val Pro Pro Pro Gln Gly Gln Asn Gly  
                   355                  360                  365  
 Ser Met Leu Pro Ser Gln Pro Ala Gly Tyr Arg Val Ala Gly Tyr Glu  
                   370                  375                  380  
 Thr Gln  
 385

<210> 872

<211> 1877

<212> DNA

<213> *Mus musculus*

<220>

<221> CDS

<222> (197).. (1531)

<400> 872

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 ccttcccaaa ctctcaccct gagggcctct caccacagat gccctgctct ctgacctgga 180  
 gaccaccact tcacac atg tca cgg tta ggg gct cca aaa gag cgc cca cca 232  
                   Met Ser Arg Leu Gly Ala Pro Lys Glu Arg Pro Pro  
                           1                          5                          10  
 gag aca ctc aca cct ccc cca ccc tat ggc cac cag cca cag aca ggg 280  
 Glu Thr Leu Thr Pro Pro Pro Pro Tyr Gly His Gln Pro Gln Thr Gly  
                   15                          20                          25  
 tct gga gaa tct tca gga acc act ggg gac aag gat cat cta tac agc 328

Ser Gly Glu Ser Ser Gly Thr Thr Gly Asp Lys Asp His Leu Tyr Ser  
 30 35 40  
 aca gta tgc aag cct cgg tcc cca aag cct gtg gcc cct gtg gct cct 376  
 Thr Val Cys Lys Pro Arg Ser Pro Lys Pro Val Ala Pro Val Ala Pro  
 45 50 55 60  
 cca ttc tcc tct tcc agt ggt gtg ttg ggc aat ggc ctc tgt gag cta 424  
 Pro Phe Ser Ser Ser Ser Gly Val Leu Gly Asn Gly Leu Cys Glu Leu  
 65 70 75  
 gac cgt ttg ctt cag gaa ctt aat gcc acc cag ttc aac att aca gat 472  
 Asp Arg Leu Leu Gln Glu Leu Asn Ala Thr Gln Phe Asn Ile Thr Asp  
 80 85 90  
 gaa atc atg tct cag ttc cca tct agt aaa atg gct gaa ggg gaa gag 520  
 Glu Ile Met Ser Gln Phe Pro Ser Ser Lys Met Ala Glu Gly Glu Glu  
 95 100 105  
 aag gag gac caa tct gaa gac aag agc tca ccc act gtc cct ccc agc 568  
 Lys Glu Asp Gln Ser Glu Asp Lys Ser Ser Pro Thr Val Pro Pro Ser  
 110 115 120  
 cca ttc cct gcc ccc tca aag cct tca gcc acc tcc gcc act cag gaa 616  
 Pro Phe Pro Ala Pro Ser Lys Pro Ser Ala Thr Ser Ala Thr Gln Glu  
 125 130 135 140  
 ctg gat aga ctg atg gcc tgc ctc tct gac ttc cgt gtt cag aac cat 664  
 Leu Asp Arg Leu Met Ala Ser Leu Ser Asp Phe Arg Val Gln Asn His  
 145 150 155  
 ctt cca gcc tca ggg cca cct cag cct cca gca gcg agc ccc acc cgt 712  
 Leu Pro Ala Ser Gly Pro Pro Gln Pro Pro Ala Ala Ser Pro Thr Arg  
 160 165 170  
 gaa gga tgc cca tct cca cca gga cag act agc aaa ggc agt ctg gac 760  
 Glu Gly Cys Pro Ser Pro Pro Gly Gln Thr Ser Lys Gly Ser Leu Asp  
 175 180 185

acc atg ctg ggc ctg ctg cag tct gac ctc agc cgt cgt ggt gtc ccc 808  
 Thr Met Leu Gly Leu Leu Gln Ser Asp Leu Ser Arg Arg Gly Val Pro  
 190 195 200  
 aca cag gcc aaa ggc ctc tgt ggc tcc tgc aat aaa cct ata gct ggg 856  
 Thr Gln Ala Lys Gly Leu Cys Gly Ser Cys Asn Lys Pro Ile Ala Gly  
 205 210 215 220  
 caa gtg gtt aca gcc ctg ggc aga gcc tgg cac ccg gag cac ttc ctt 904  
 Gln Val Val Thr Ala Leu Gly Arg Ala Trp His Pro Glu His Phe Leu  
 225 230 235  
 tgc agc ggt tgt tcc aca acc ctg gga ggc agc agc ttc ttc gag aag 952  
 Cys Ser Gly Cys Ser Thr Thr Leu Gly Gly Ser Ser Phe Phe Glu Lys  
 240 245 250  
 gat ggg gct ccc ttt tgc ccc gag tgc tac ttt gag cgc ttc tcc cca 1000  
 Asp Gly Ala Pro Phe Cys Pro Glu Cys Tyr Phe Glu Arg Phe Ser Pro  
 255 260 265  
 cga tgt ggc ttc tgt aac caa ccc atc cga cac aaa atg gtt acc gcc 1048  
 Arg Cys Gly Phe Cys Asn Gln Pro Ile Arg His Lys Met Val Thr Ala  
 270 275 280  
 ttg ggc acc cac tgg cac cca gaa cat ttc tgc tgc gtc agc tgc gga 1096  
 Leu Gly Thr His Trp His Pro Glu His Phe Cys Cys Val Ser Cys Gly  
 285 290 295 300  
 gag cct ttt gga gaa gag ggt ttc cac gag cgg gag ggt cgt ccg tac 1144  
 Glu Pro Phe Gly Glu Glu Gly Phe His Glu Arg Glu Gly Arg Pro Tyr  
 305 310 315  
 tgc cgg cgg gac ttc ctg cag ctg ttc gcc cca cgc tgc cag ggc tgc 1192  
 Cys Arg Arg Asp Phe Leu Gln Leu Phe Ala Pro Arg Cys Gln Gly Cys  
 320 325 330  
 caa ggc cct att ttg gat aac tac atc tcg gca ctc agc gcg ctc tgg 1240  
 Gln Gly Pro Ile Leu Asp Asn Tyr Ile Ser Ala Leu Ser Ala Leu Trp

|   |      |     |     |
|---|------|-----|-----|
| 335   | 340  | 345 |     |
| cac cca gac tgc ttc gtg tgc agg gaa tgc ctt gcg ccc ttc tcc gga   | 1288 |     |     |
| His Pro Asp Cys Phe Val Cys Arg Glu Cys Leu Ala Pro Phe Ser Gly   |      |     |     |
| 350   | 355  | 360 |     |
| ggc agc ttt ttt gag cac gag ggt cgc cct ttg tgt gaa aac cat ttc   | 1336 |     |     |
| Gly Ser Phe Phe Glu His Glu Gly Arg Pro Leu Cys Glu Asn His Phe   |      |     |     |
| 365   | 370  | 375 | 380 |
| cat gct cag cgt ggt tcg ctg tgt gcc acg tgt ggt ctc cca gtg acc   | 1384 |     |     |
| His Ala Gln Arg Gly Ser Leu Cys Ala Thr Cys Gly Leu Pro Val Thr   |      |     |     |
| 385   | 390  | 395 |     |
| ggc cgc tgt gtg tcc gct ctg ggc cga cgc ttc cat cca gac cac ttc   | 1432 |     |     |
| Gly Arg Cys Val Ser Ala Leu Gly Arg Arg Phe His Pro Asp His Phe   |      |     |     |
| 400   | 405  | 410 |     |
| acc tgc aca ttc tgc ctg cgc cca ctc acc aaa ggc tcc ttc cag gag   | 1480 |     |     |
| Thr Cys Thr Phe Cys Leu Arg Pro Leu Thr Lys Gly Ser Phe Gln Glu   |      |     |     |
| 415   | 420  | 425 |     |
| cgc gcc agc aag cct tac tgc cag cct tgc ttc ctg aag ctc ttc ggc   | 1528 |     |     |
| Arg Ala Ser Lys Pro Tyr Cys Gln Pro Cys Phe Leu Lys Leu Phe Gly   |      |     |     |
| 430   | 435  | 440 |     |
| tga cctcctcttg ggaacagaga tctccaaaac taagccttca aaaacacatt        | 1581 |     |     |
| 445   |      |     |     |
| cgtagaaaag actgagtcct ccagatccct ggctctggag ctaccaggc atccttgctc  | 1641 |     |     |
| cttctccac ccccatcccc attgtggccc agccactgga gaggcctacc cctaagatgc  | 1701 |     |     |
| tctaggtttg tcaatttcag aaagggcccc attagcctgg aatgtagctc tcactttgac | 1761 |     |     |
| atgattctgg ttctcttgct tgaccaagta gaggccagga tgcctgtt caccatggc    | 1821 |     |     |
| acactattct gtacacattt tttttctac aaacataaaa acacactcca cacttt      | 1877 |     |     |

&lt;210&gt; 873

&lt;211&gt; 444



&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 873

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Pro Pro Pro Pro Tyr Gly His Gln Pro Gln Thr Gly Ser Gly Glu Ser
      20             25             30
Ser Gly Thr Thr Gly Asp Lys Asp His Leu Tyr Ser Thr Val Cys Lys
      35             40             45
Pro Arg Ser Pro Lys Pro Val Ala Pro Val Ala Pro Pro Phe Ser Ser
      50             55             60
Ser Ser Gly Val Leu Gly Asn Gly Leu Cys Glu Leu Asp Arg Leu Leu
      65             70             75             80
Gln Glu Leu Asn Ala Thr Gln Phe Asn Ile Thr Asp Glu Ile Met Ser
      85             90             95
Gln Phe Pro Ser Ser Lys Met Ala Glu Gly Glu Glu Lys Glu Asp Gln
      100            105            110
Ser Glu Asp Lys Ser Ser Pro Thr Val Pro Pro Ser Pro Phe Pro Ala
      115            120            125
Pro Ser Lys Pro Ser Ala Thr Ser Ala Thr Gln Glu Leu Asp Arg Leu
      130            135            140
Met Ala Ser Leu Ser Asp Phe Arg Val Gln Asn His Leu Pro Ala Ser
      145            150            155            160
Gly Pro Pro Gln Pro Pro Ala Ala Ser Pro Thr Arg Glu Gly Cys Pro
      165            170            175
Ser Pro Pro Gly Gln Thr Ser Lys Gly Ser Leu Asp Thr Met Leu Gly
      180            185            190
Leu Leu Gln Ser Asp Leu Ser Arg Arg Gly Val Pro Thr Gln Ala Lys

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|   |     |     |
|---|-----|-----|
| 195   | 200 | 205 |
| Gly Leu Cys Gly Ser Cys Asn Lys Pro Ile Ala Gly Gln Val Val Thr |     |     |
| 210   | 215 | 220 |
| Ala Leu Gly Arg Ala Trp His Pro Glu His Phe Leu Cys Ser Gly Cys |     |     |
| 225   | 230 | 235 |
| Ser Thr Thr Leu Gly Gly Ser Ser Phe Phe Glu Lys Asp Gly Ala Pro |     | 240 |
| 245   | 250 | 255 |
| Phe Cys Pro Glu Cys Tyr Phe Glu Arg Phe Ser Pro Arg Cys Gly Phe |     |     |
| 260   | 265 | 270 |
| Cys Asn Gln Pro Ile Arg His Lys Met Val Thr Ala Leu Gly Thr His |     |     |
| 275   | 280 | 285 |
| Trp His Pro Glu His Phe Cys Cys Val Ser Cys Gly Glu Pro Phe Gly |     |     |
| 290   | 295 | 300 |
| Glu Glu Gly Phe His Glu Arg Glu Gly Arg Pro Tyr Cys Arg Arg Asp |     |     |
| 305   | 310 | 315 |
| Phe Leu Gln Leu Phe Ala Pro Arg Cys Gln Gly Cys Gln Gly Pro Ile |     | 320 |
| 325   | 330 | 335 |
| Leu Asp Asn Tyr Ile Ser Ala Leu Ser Ala Leu Trp His Pro Asp Cys |     |     |
| 340   | 345 | 350 |
| Phe Val Cys Arg Glu Cys Leu Ala Pro Phe Ser Gly Gly Ser Phe Phe |     |     |
| 355   | 360 | 365 |
| Glu His Glu Gly Arg Pro Leu Cys Glu Asn His Phe His Ala Gln Arg |     |     |
| 370   | 375 | 380 |
| Gly Ser Leu Cys Ala Thr Cys Gly Leu Pro Val Thr Gly Arg Cys Val |     |     |
| 385   | 390 | 395 |
| Ser Ala Leu Gly Arg Arg Phe His Pro Asp His Phe Thr Cys Thr Phe |     | 400 |
| 405   | 410 | 415 |
| Cys Leu Arg Pro Leu Thr Lys Gly Ser Phe Gln Glu Arg Ala Ser Lys |     |     |
| 420   | 425 | 430 |

Pro Tyr Cys Gln Pro Cys Phe Leu Lys Leu Phe Gly

435

440

<210> 874

<211> 2908

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (626).. (2050)

<400> 874

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cgcccgtagc ccgcgcccac ggccgcgcgc acccggtaca gtccccagga ctccgcaccc 180
cgcgccaccg tccagctcgc agttccgcgc caccgcggcc attctcacct ggcggcgcgc 240
cccgccaccg cccggaccac agccccgcgc ccgcccagag ccacagtggc cgcgacaacg 300
gtgggggaca ctgctgagtc caagagcgtg cagcctggcc atcggacctt cttatctgcc 360
ttgctgattg tctatittta taagagttta caacttttct aagaattttt gtatacaaag 420
gaactttttt taaagacatc gccggtttat attgaatcca aagaagaagg atctcgggca 480
atctgggggt tttggtttga gttttgttt ctaaagtttt taatcttcgt tgactttggg 540
gtcaggttac ccctctctct tcttcggact ccggaggacc ttctggggcc ccacattaat 600
gaggcagcca cctggcgagt ctgac atg gct gtc agc gac gct ctg ctc ccg 652

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Met Ala Val Ser Asp Ala Leu Leu Pro

1

5

```

tcc ttc tcc acg ttc gcg tcc ggc ccg gcg gga agg gag aag aca ctg 700

```

Ser Phe Ser Thr Phe Ala Ser Gly Pro Ala Gly Arg Glu Lys Thr Leu

10

15

20

25

|   |      |
|---|------|
| cgt cca gca ggt gcc ccg act aac cgt tgg cgt gag gaa ctc tct cac | 748  |
| Arg Pro Ala Gly Ala Pro Thr Asn Arg Trp Arg Glu Glu Leu Ser His |      |
| 30 35 40  |      |
| atg aag cga ctt ccc cca ctt ccc ggc cgc ccc tac gac ctg gcg gcg | 796  |
| Met Lys Arg Leu Pro Pro Leu Pro Gly Arg Pro Tyr Asp Leu Ala Ala |      |
| 45 50 55  |      |
| acg gtg gcc aca gac ctg gag agt ggc gga gct ggt gca gct tgc agc | 844  |
| Thr Val Ala Thr Asp Leu Glu Ser Gly Gly Ala Gly Ala Ala Cys Ser |      |
| 60 65 70  |      |
| agt aac aac ccg gcc ctc cta gcc cgg agg gag acc gag gag ttc aac | 892  |
| Ser Asn Asn Pro Ala Leu Leu Ala Arg Arg Glu Thr Glu Glu Phe Asn |      |
| 75 80 85  |      |
| gac ctc ctg gac cta gac ttt atc ctt tcc aac tcg cta acc cac cag | 940  |
| Asp Leu Leu Asp Leu Asp Phe Ile Leu Ser Asn Ser Leu Thr His Gln |      |
| 90 95 100 105   |      |
| gaa tcg gtg gcc gcc acc gtg acc acc tcg gcg tca gct tca tcc tcg | 988  |
| Glu Ser Val Ala Ala Thr Val Thr Thr Ser Ala Ser Ala Ser Ser Ser |      |
| 110 115 120   |      |
| tct tcc ccg gcg agc agc ggc cct gcc agc gcg ccc tcc acc tgc agc | 1036 |
| Ser Ser Pro Ala Ser Ser Gly Pro Ala Ser Ala Pro Ser Thr Cys Ser |      |
| 125 130 135   |      |
| ttc agc tat ccg atc cgg gcc ggg ggt gac ccg ggc gtg gct gcc aga | 1084 |
| Phe Ser Tyr Pro Ile Arg Ala Gly Gly Asp Pro Gly Val Ala Ala Arg |      |
| 140 145 150   |      |
| aac aca ggt gga ggg ctc ctc tac agc cga gaa tct gcg cca cct ccc | 1132 |
| Asn Thr Gly Gly Gly Leu Leu Tyr Ser Arg Glu Ser Ala Pro Pro Pro |      |
| 155 160 165   |      |
| acg gcc ccc ttc aac ctg ggg gac atc aat gac gtg agc ccc tcg ggc | 1180 |
| Thr Ala Pro Phe Asn Leu Gly Asp Ile Asn Asp Val Ser Pro Ser Gly |      |

|   |      |     |     |  |
|---|------|-----|-----|--|
| 170   | 175  | 180 | 185 |  |
| ggc ttc gtg gct gag ctc ctg cgg ccg gag ttg gac cca gta tac att | 1228 |     |     |  |
| Gly Phe Val Ala Glu Leu Leu Arg Pro Glu Leu Asp Pro Val Tyr Ile |      |     |     |  |
| 190   | 195  | 200 |     |  |
| ccg cca cag cag cct cag ccg cca ggt ggg ggg ctg atg ggc aag ttt | 1276 |     |     |  |
| Pro Pro Gln Gln Pro Gln Pro Pro Gly Gly Gly Leu Met Gly Lys Phe |      |     |     |  |
| 205   | 210  | 215 |     |  |
| gtg ctg aag gcg tct ctg acc acc cct ggc agc gag tac agc agc cct | 1324 |     |     |  |
| Val Leu Lys Ala Ser Leu Thr Thr Pro Gly Ser Glu Tyr Ser Ser Pro |      |     |     |  |
| 220   | 225  | 230 |     |  |
| tcg gtc atc agt gtt agc aaa gga agc cca gac ggc agc cac ccc gtg | 1372 |     |     |  |
| Ser Val Ile Ser Val Ser Lys Gly Ser Pro Asp Gly Ser His Pro Val |      |     |     |  |
| 235   | 240  | 245 |     |  |
| gta gtg gcg ccc tac agc ggt ggc ccg ccg cgc atg tgc ccc aag att | 1420 |     |     |  |
| Val Val Ala Pro Tyr Ser Gly Gly Pro Pro Arg Met Cys Pro Lys Ile |      |     |     |  |
| 250   | 255  | 260 | 265 |  |
| aag caa gag gcg gtc ccg tcc tgc acg gtc agc cgg tcc cta gag gcc | 1468 |     |     |  |
| Lys Gln Glu Ala Val Pro Ser Cys Thr Val Ser Arg Ser Leu Glu Ala |      |     |     |  |
| 270   | 275  | 280 |     |  |
| cat ttg agc gct gga ccc cag ctc agc aac ggc cac cgg ccc aac aca | 1516 |     |     |  |
| His Leu Ser Ala Gly Pro Gln Leu Ser Asn Gly His Arg Pro Asn Thr |      |     |     |  |
| 285   | 290  | 295 |     |  |
| cac gac ttc ccc ctg ggg cgg cag ctc ccc acc agg act acc cct aca | 1564 |     |     |  |
| His Asp Phe Pro Leu Gly Arg Gln Leu Pro Thr Arg Thr Thr Pro Thr |      |     |     |  |
| 300   | 305  | 310 |     |  |
| ctg agt ccc gag gaa ctg ctg aac agc agg gac tgt cac cct ggc ctg | 1612 |     |     |  |
| Leu Ser Pro Glu Glu Leu Leu Asn Ser Arg Asp Cys His Pro Gly Leu |      |     |     |  |
| 315   | 320  | 325 |     |  |
| cct ctt ccc cca gga ttc cat ccc cat ccg ggg gcc aac tac cct cct | 1660 |     |     |  |

Pro Leu Pro Pro Gly Phe His Pro His Pro Gly Ala Asn Tyr Pro Pro  
 330 335 340 345  
 ttc ctg cca gac cag atg cag tca caa gtc ccc tct ctc cat tat caa 1708  
 Phe Leu Pro Asp Gln Met Gln Ser Gln Val Pro Ser Leu His Tyr Gln  
 350 355 360  
 gag ctc atg cca ccg ggt tcc tgc ctg cca gag gag ccc aag cca aag 1756  
 Glu Leu Met Pro Pro Gly Ser Cys Leu Pro Glu Glu Pro Lys Pro Lys  
 365 370 375  
 agg gga aga agg tcg tgg ccc cgg aaa aga aca gcc acc cac act tgt 1804  
 Arg Gly Arg Arg Ser Trp Pro Arg Lys Arg Thr Ala Thr His Thr Cys  
 380 385 390  
 gac tat gca ggc tgt ggc aaa acc tat acc aag agt tct cat ctc aag 1852  
 Asp Tyr Ala Gly Cys Gly Lys Thr Tyr Thr Lys Ser Ser His Leu Lys  
 395 400 405  
 gca cac ctg cga act cac aca ggc gag aaa cct tac cac tgt gac tgg 1900  
 Ala His Leu Arg Thr His Thr Gly Glu Lys Pro Tyr His Cys Asp Trp  
 410 415 420 425  
 gac ggc tgt ggg tgg aaa ttc gcc cgc tcc gat gaa ctg acc agg cac 1948  
 Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp Glu Leu Thr Arg His  
 430 435 440  
 tac cgc aaa cac aca ggg cac cgg ccc ttt cag tgc cag aag tgt gac 1996  
 Tyr Arg Lys His Thr Gly His Arg Pro Phe Gln Cys Gln Lys Cys Asp  
 445 450 455  
 agg gcc tti tcc agg tcg gac cac ctt gcc tta cac atg aag agg cac 2044  
 Arg Ala Phe Ser Arg Ser Asp His Leu Ala Leu His Met Lys Arg His  
 460 465 470  
 ttt taa atcccacgta gtggatgtga cccacactgc caggagagag agttcagtat 2100  
 Phe  
 475

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ttttttttct aacctttcac actgicctcc cactgagggga ggagcccagc tggcaagcgc 2160
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<210> 875

<211> 474

<212> PRT

<213> Mus musculus

<400> 875

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          20             25             30
Asn Arg Trp Arg Glu Glu Leu Ser His Met Lys Arg Leu Pro Pro Leu
          35             40             45
Pro Gly Arg Pro Tyr Asp Leu Ala Ala Thr Val Ala Thr Asp Leu Glu
          50             55             60

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2156/2644



290                      295                      300  
 Gln Leu Pro Thr Arg Thr Thr Pro Thr Leu Ser Pro Glu Glu Leu Leu  
 305                      310                      315                      320  
 Asn Ser Arg Asp Cys His Pro Gly Leu Pro Leu Pro Pro Gly Phe His  
                     325                      330                      335  
 Pro His Pro Gly Ala Asn Tyr Pro Pro Phe Leu Pro Asp Gln Met Gln  
                     340                      345                      350  
 Ser Gln Val Pro Ser Leu His Tyr Gln Glu Leu Met Pro Pro Gly Ser  
                     355                      360                      365  
 Cys Leu Pro Glu Glu Pro Lys Pro Lys Arg Gly Arg Arg Ser Trp Pro  
                     370                      375                      380  
 Arg Lys Arg Thr Ala Thr His Thr Cys Asp Tyr Ala Gly Cys Gly Lys  
 385                      390                      395                      400  
 Thr Tyr Thr Lys Ser Ser His Leu Lys Ala His Leu Arg Thr His Thr  
                     405                      410                      415  
 Gly Glu Lys Pro Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe  
                     420                      425                      430  
 Ala Arg Ser Asp Glu Leu Thr Arg His Tyr Arg Lys His Thr Gly His  
                     435                      440                      445  
 Arg Pro Phe Gln Cys Gln Lys Cys Asp Arg Ala Phe Ser Arg Ser Asp  
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<210> 876

<211> 558

<212> DNA

<213> Mus musculus

&lt;400&gt; 876

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 tggaagagac attcgaaatg aagataagat cctgaccatc gaagigaaga tgggctggaa 180  
 agaagggacc aaaatcacct ttcccaagga aggggaccag acctcgaaca acattccagc 240  
 agacatcgtc tttgttttaa aggacaagcc acacaataatc ttcaagagag atggttctga 300  
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 gcggcggaag gtccctggag aaggcctccc tctccccaaa acacctgaga aacgtggaga 480  
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&lt;210&gt; 877

&lt;211&gt; 2048

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (178).. (1767)

&lt;400&gt; 877

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 ccaccitttcg tggaatctg agccggctgt acagcitttc tccttgittcc tgcagcc 177  
 atg tcc acg aac gag aat gct aac tta cca gct gcc cga ctt aac agg 225  
 Met Ser Thr Asn Glu Asn Ala Asn Leu Pro Ala Ala Arg Leu Asn Arg  
 1 5 10 15  
 ttc aag aac aag ggg aag gac agc aca gaa atg cgt cgc cgc cga ata 273

Phe Lys Asn Lys Gly Lys Asp Ser Thr Glu Met Arg Arg Arg Arg Ile  
                   20                                  25                                  30  
 gaa gtt aat gtg gaa ctc agg aaa gct aaa aaa gat gag cag atg ctg 321  
 Glu Val Asn Val Glu Leu Arg Lys Ala Lys Lys Asp Glu Gln Met Leu  
                   35                                  40                                  45  
 aaa aga aga aac gtc agc tcc ttt cct gat gat gct act tct ccg cta 369  
 Lys Arg Arg Asn Val Ser Ser Phe Pro Asp Asp Ala Thr Ser Pro Leu  
                   50                                  55                                  60  
 cag gaa aac cgg aac aac cag ggt act gta aat tgg tct gtt gag gac 417  
 Gln Glu Asn Arg Asn Asn Gln Gly Thr Val Asn Trp Ser Val Glu Asp  
                   65                                  70                                  75                                  80  
 att gtt aaa ggc ata aac agt aac aat ttg gaa agc cag ctc caa gct 465  
 Ile Val Lys Gly Ile Asn Ser Asn Asn Leu Glu Ser Gln Leu Gln Ala  
                                   85                                  90                                  95  
 act caa gct gct cgg aaa ttg ctt tct aga gag aaa cag cct cct ata 513  
 Thr Gln Ala Ala Arg Lys Leu Leu Ser Arg Glu Lys Gln Pro Pro Ile  
                   100                                  105                                  110  
 gac aac atc atc cgg gct ggt ttg atc cca aaa ttt gtg tcc ttc ttg 561  
 Asp Asn Ile Ile Arg Ala Gly Leu Ile Pro Lys Phe Val Ser Phe Leu  
                   115                                  120                                  125  
 ggc aaa act gat tgt agt cct att cag ttt gag tct gct tgg gca ctc 609  
 Gly Lys Thr Asp Cys Ser Pro Ile Gln Phe Glu Ser Ala Trp Ala Leu  
                   130                                  135                                  140  
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 Thr Asn Ile Ala Ser Gly Thr Ser Glu Gln Thr Lys Ala Val Val Asp  
                   145                                  150                                  155                                  160  
 gga ggt gct atc cca gcg ttt att tct ctc ttg gca tct cct cat gct 705  
 Gly Gly Ala Ile Pro Ala Phe Ile Ser Leu Leu Ala Ser Pro His Ala  
                   165                                  170                                  175

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 His Ile Ser Glu Gln Ala Val Trp Ala Leu Gly Asn Ile Ala Gly Asp  
 180 185 190  
 ggt tca gct ttc cga gac tta gtt atc aaa cac ggt gcg att gac cca 801  
 Gly Ser Ala Phe Arg Asp Leu Val Ile Lys His Gly Ala Ile Asp Pro  
 195 200 205  
 ctg ttg gca ctt ctt gca gtt ccc gat ctg tct acc ttg gca tgt ggt 849  
 Leu Leu Ala Leu Leu Ala Val Pro Asp Leu Ser Thr Leu Ala Cys Gly  
 210 215 220  
 tac tta cgt aat ctt acc tgg aca ctt tca aac ctt tgt cga aac aag 897  
 Tyr Leu Arg Asn Leu Thr Trp Thr Leu Ser Asn Leu Cys Arg Asn Lys  
 225 230 235 240  
 aac cct gca cct ccc tta gac gcc gtt gag cag att ctt cct acg tta 945  
 Asn Pro Ala Pro Pro Leu Asp Ala Val Glu Gln Ile Leu Pro Thr Leu  
 245 250 255  
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 Val Arg Leu Leu His His Asn Asp Pro Glu Val Leu Ala Asp Ser Cys  
 260 265 270  
 tgg gcc att tcc tac ctg act gat ggt cca aat gag cgc att gag atg 1041  
 Trp Ala Ile Ser Tyr Leu Thr Asp Gly Pro Asn Glu Arg Ile Glu Met  
 275 280 285  
 gtt gtg aag aaa gga gtt gtc ccc caa ctt gtg aag ctt cta gga gct 1089  
 Val Val Lys Lys Gly Val Val Pro Gln Leu Val Lys Leu Leu Gly Ala  
 290 295 300  
 act gaa ctg ccc att gtg act ccc gca cta aga gcc ata ggg aat att 1137  
 Thr Glu Leu Pro Ile Val Thr Pro Ala Leu Arg Ala Ile Gly Asn Ile  
 305 310 315 320  
 gtc act gga aca gat gag cag act cag aaa gtg atc gat gca gga gca 1185  
 Val Thr Gly Thr Asp Glu Gln Thr Gln Lys Val Ile Asp Ala Gly Ala

|   |     |     |      |
|---|-----|-----|------|
| 325   | 330 | 335 |      |
| ctt gca gtc ttt ccc agc ctg cta aca aac ccc aaa act aat att cag |     |     | 1233 |
| Leu Ala Val Phe Pro Ser Leu Leu Thr Asn Pro Lys Thr Asn Ile Gln |     |     |      |
| 340   | 345 | 350 |      |
| aag gag gcc aca tgg aca atg tcg aac att aca gct gga cgc cag gac |     |     | 1281 |
| Lys Glu Ala Thr Trp Thr Met Ser Asn Ile Thr Ala Gly Arg Gln Asp |     |     |      |
| 355   | 360 | 365 |      |
| cag ata cag caa gtt gtg aat cac ggc cta gtc ccc ttt ctt gtt ggt |     |     | 1329 |
| Gln Ile Gln Gln Val Val Asn His Gly Leu Val Pro Phe Leu Val Gly |     |     |      |
| 370   | 375 | 380 |      |
| gtc ctc tct aag gcg gac ttt aag aca cag aag gag gcc gcg tgg gct |     |     | 1377 |
| Val Leu Ser Lys Ala Asp Phe Lys Thr Gln Lys Glu Ala Ala Trp Ala |     |     |      |
| 385   | 390 | 395 | 400  |
| ata acc aac tat acc agc ggt ggg act gtt gag cag att gtg tat ctc |     |     | 1425 |
| Ile Thr Asn Tyr Thr Ser Gly Gly Thr Val Glu Gln Ile Val Tyr Leu |     |     |      |
| 405   | 410 | 415 |      |
| gtt cac tgt ggg ata ata gaa cct ttg atg aac ctc ctg agt gca aaa |     |     | 1473 |
| Val His Cys Gly Ile Ile Glu Pro Leu Met Asn Leu Leu Ser Ala Lys |     |     |      |
| 420   | 425 | 430 |      |
| gat acc aag att att cag gtt att ctt gac gcc att tca aat atc ttt |     |     | 1521 |
| Asp Thr Lys Ile Ile Gln Val Ile Leu Asp Ala Ile Ser Asn Ile Phe |     |     |      |
| 435   | 440 | 445 |      |
| cag gct gca gag aaa cta ggt gag aca gaa aag ctc agt ata atg att |     |     | 1569 |
| Gln Ala Ala Glu Lys Leu Gly Glu Thr Glu Lys Leu Ser Ile Met Ile |     |     |      |
| 450   | 455 | 460 |      |
| gaa gag tgt gga ggc ttg gat aaa att gaa gca cta cag agg cat gaa |     |     | 1617 |
| Glu Glu Cys Gly Gly Leu Asp Lys Ile Glu Ala Leu Gln Arg His Glu |     |     |      |
| 465   | 470 | 475 | 480  |
| aac gag tct gta tac aag gcc tca ttg aac tta att gag aag tac ttc |     |     | 1665 |

Asn Glu Ser Val Tyr Lys Ala Ser Leu Asn Leu Ile Glu Lys Tyr Phe  
                     485                    490                    495  
 tca gtg gag gaa gag gaa gat caa aat gtg gtg cca gaa act acc tct 1713  
 Ser Val Glu Glu Glu Glu Asp Gln Asn Val Val Pro Glu Thr Thr Ser  
                     500                    505                    510  
 gaa ggc ttc gcc ttc caa gtt cag gat gga gct cct ggg acc ttt aac 1761  
 Glu Gly Phe Ala Phe Gln Val Gln Asp Gly Ala Pro Gly Thr Phe Asn  
                     515                    520                    525  
 ttc taa tgtccagcta aggcacaaag ttgttagcta tgtgctgtgc tattctgtgt 1817  
 Phe  
                     530  
 tctcatagat ttgtcttact gtttctctac taagaactct ttttaaagt ggtttgttat 1877  
 tgtagcactt tttaaaaaag aaactatact tgaacagtta taaactgtac atactctatg 1937  
 aagctgtcct ctgaatttat ttctaigtgg aatttcgtac cctgtcatgt cctgtaaata 1997  
 aagattaaag ttccattctt aaaaaaaaaa aaaaaaaaaa gtcgagcgcg c 2048

&lt;210&gt; 878

&lt;211&gt; 529

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 878

Met Ser Thr Asn Glu Asn Ala Asn Leu Pro Ala Ala Arg Leu Asn Arg  
   1                    5                    10                    15  
 Phe Lys Asn Lys Gly Lys Asp Ser Thr Glu Met Arg Arg Arg Arg Ile  
                     20                    25                    30  
 Glu Val Asn Val Glu Leu Arg Lys Ala Lys Lys Asp Glu Gln Met Leu  
                     35                    40                    45  
 Lys Arg Arg Asn Val Ser Ser Phe Pro Asp Asp Ala Thr Ser Pro Leu

|   |     |     |
|---|-----|-----|
| 50  | 55  | 60  |
| Gln Glu Asn Arg Asn Asn Gln Gly Thr Val Asn Trp Ser Val Glu Asp |     |     |
| 65  | 70  | 75  |
| Ile Val Lys Gly Ile Asn Ser Asn Asn Leu Glu Ser Gln Leu Gln Ala |     |     |
| 85  | 90  | 95  |
| Thr Gln Ala Ala Arg Lys Leu Leu Ser Arg Glu Lys Gln Pro Pro Ile |     |     |
| 100   | 105 | 110 |
| Asp Asn Ile Ile Arg Ala Gly Leu Ile Pro Lys Phe Val Ser Phe Leu |     |     |
| 115   | 120 | 125 |
| Gly Lys Thr Asp Cys Ser Pro Ile Gln Phe Glu Ser Ala Trp Ala Leu |     |     |
| 130   | 135 | 140 |
| Thr Asn Ile Ala Ser Gly Thr Ser Glu Gln Thr Lys Ala Val Val Asp |     |     |
| 145   | 150 | 155 |
| Gly Gly Ala Ile Pro Ala Phe Ile Ser Leu Leu Ala Ser Pro His Ala |     |     |
| 165   | 170 | 175 |
| His Ile Ser Glu Gln Ala Val Trp Ala Leu Gly Asn Ile Ala Gly Asp |     |     |
| 180   | 185 | 190 |
| Gly Ser Ala Phe Arg Asp Leu Val Ile Lys His Gly Ala Ile Asp Pro |     |     |
| 195   | 200 | 205 |
| Leu Leu Ala Leu Leu Ala Val Pro Asp Leu Ser Thr Leu Ala Cys Gly |     |     |
| 210   | 215 | 220 |
| Tyr Leu Arg Asn Leu Thr Trp Thr Leu Ser Asn Leu Cys Arg Asn Lys |     |     |
| 225   | 230 | 235 |
| Asn Pro Ala Pro Pro Leu Asp Ala Val Glu Gln Ile Leu Pro Thr Leu |     |     |
| 245   | 250 | 255 |
| Val Arg Leu Leu His His Asn Asp Pro Glu Val Leu Ala Asp Ser Cys |     |     |
| 260   | 265 | 270 |
| Trp Ala Ile Ser Tyr Leu Thr Asp Gly Pro Asn Glu Arg Ile Glu Met |     |     |
| 275   | 280 | 285 |

Val Val Lys Lys Gly Val Val Pro Gln Leu Val Lys Leu Leu Gly Ala  
 290 295 300  
 Thr Glu Leu Pro Ile Val Thr Pro Ala Leu Arg Ala Ile Gly Asn Ile  
 305 310 315 320  
 Val Thr Gly Thr Asp Glu Gln Thr Gln Lys Val Ile Asp Ala Gly Ala  
 325 330 335  
 Leu Ala Val Phe Pro Ser Leu Leu Thr Asn Pro Lys Thr Asn Ile Gln  
 340 345 350  
 Lys Glu Ala Thr Trp Thr Met Ser Asn Ile Thr Ala Gly Arg Gln Asp  
 355 360 365  
 Gln Ile Gln Gln Val Val Asn His Gly Leu Val Pro Phe Leu Val Gly  
 370 375 380  
 Val Leu Ser Lys Ala Asp Phe Lys Thr Gln Lys Glu Ala Ala Trp Ala  
 385 390 395 400  
 Ile Thr Asn Tyr Thr Ser Gly Gly Thr Val Glu Gln Ile Val Tyr Leu  
 405 410 415  
 Val His Cys Gly Ile Ile Glu Pro Leu Met Asn Leu Leu Ser Ala Lys  
 420 425 430  
 Asp Thr Lys Ile Ile Gln Val Ile Leu Asp Ala Ile Ser Asn Ile Phe  
 435 440 445  
 Gln Ala Ala Glu Lys Leu Gly Glu Thr Glu Lys Leu Ser Ile Met Ile  
 450 455 460  
 Glu Glu Cys Gly Gly Leu Asp Lys Ile Glu Ala Leu Gln Arg His Glu  
 465 470 475 480  
 Asn Glu Ser Val Tyr Lys Ala Ser Leu Asn Leu Ile Glu Lys Tyr Phe  
 485 490 495  
 Ser Val Glu Glu Glu Glu Asp Gln Asn Val Val Pro Glu Thr Thr Ser  
 500 505 510  
 Glu Gly Phe Ala Phe Gln Val Gln Asp Gly Ala Pro Gly Thr Phe Asn



515

520

525

Phe

&lt;210&gt; 879

&lt;211&gt; 2760

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (381).. (1598)

&lt;400&gt; 879

caagtgggga aggacacaaa acattctgcc gttaggatgta gatggcagtc tttgtgggtg 60  
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 ctccgaagtc actcttcgca gtgaacaaaa cacagacgtc agtgaccctg ctgtgggttg 180  
 aggagggtgt tgctgatttc tttgaagtct tctgtcagca gctcggctct gccacaatg 240  
 gcaaactcca ggagccagta gctgtgtcgt cccacgtggt gaccatctcc agcctcctcc 300  
 cagccactgc ctacaactgc agtgtcacca gcttcagcca cgacactccc agtgtcccta 360  
 cattcatagc tgtctccaca atg gtt aca gag gtg aac cct aac gtg gtg gtg 413

Met Val Thr Glu Val Asn Pro Asn Val Val Val

1

5

10

atc tcg gtg ctg gcc atc ctc agc aca ctt tta att gga ctg ctc tta 461  
 Ile Ser Val Leu Ala Ile Leu Ser Thr Leu Leu Ile Gly Leu Leu Leu

15

20

25

gtg acc ctt gtc att ctc cga aag aag cac ctg cag atg gct agg gaa 509  
 Val Thr Leu Val Ile Leu Arg Lys Lys His Leu Gln Met Ala Arg Glu

30

35

40

tgt gga gct ggc acg ttt gtc aac ttt gca tcc tta gaa agg gaa ggg 557

Cys Gly Ala Gly Thr Phe Val Asn Phe Ala Ser Leu Glu Arg Glu Gly  
 45 50 55  
 aaa ctc ccc tac agt tgg cgt agg agt gtg ttt gct ctc tta acc ctg 605  
 Lys Leu Pro Tyr Ser Trp Arg Arg Ser Val Phe Ala Leu Leu Thr Leu  
 60 65 70 75  
 ctg cct tca tgt ctt tgg act gac tat ctt ttg gca ttt tat att aac 653  
 Leu Pro Ser Cys Leu Trp Thr Asp Tyr Leu Leu Ala Phe Tyr Ile Asn  
 80 85 90  
 cct tgg agt aaa aat ggc tta aag aag agg aaa cta aca aac ccc gtt 701  
 Pro Trp Ser Lys Asn Gly Leu Lys Lys Arg Lys Leu Thr Asn Pro Val  
 95 100 105  
 cag ctg gat gac ttc gat tct tac atc aag gat atg gcc aag gac tgc 749  
 Gln Leu Asp Asp Phe Asp Ser Tyr Ile Lys Asp Met Ala Lys Asp Ser  
 110 115 120  
 gac tat aaa ttc tct ctt cag ttt gag gag ttg aag ttg att gga ctg 797  
 Asp Tyr Lys Phe Ser Leu Gln Phe Glu Glu Leu Lys Leu Ile Gly Leu  
 125 130 135  
 gat att ccg cac ttt gct gca gat cta ccg ctg aac cga tgt aaa aac 845  
 Asp Ile Pro His Phe Ala Ala Asp Leu Pro Leu Asn Arg Cys Lys Asn  
 140 145 150 155  
 cgc tac aca aac atc ctg ccg tat gac ttt agc cgg gtg agg cta gtc 893  
 Arg Tyr Thr Asn Ile Leu Pro Tyr Asp Phe Ser Arg Val Arg Leu Val  
 160 165 170  
 tcc atg aac gaa gag gaa gga gca gac tac att aat gcc aac tat att 941  
 Ser Met Asn Glu Glu Glu Gly Ala Asp Tyr Ile Asn Ala Asn Tyr Ile  
 175 180 185  
 cct gga tac aac tca ccc cag gag tac att gcc acc cag ggt ccc ctg 989  
 Pro Gly Tyr Asn Ser Pro Gln Glu Tyr Ile Ala Thr Gln Gly Pro Leu  
 190 195 200

cca gaa acc aga aat gac ttc tgg aag atg gtc cta caa cag aag tcc 1037  
Pro Glu Thr Arg Asn Asp Phe Trp Lys Met Val Leu Gln Gln Lys Ser  
205 210 215

cac atc atc gtc atg ctc act caa tgc aat gag aaa agg agg gta aaa 1085  
His Ile Ile Val Met Leu Thr Gln Cys Asn Glu Lys Arg Arg Val Lys  
220 225 230 235

tgt gac cac tac tgg cca ttc aca gaa gaa ccc att gct tat ggg gac 1133  
Cys Asp His Tyr Trp Pro Phe Thr Glu Glu Pro Ile Ala Tyr Gly Asp  
240 245 250

atc acc gtg gag atg gtc tct gag gaa gag gag gag gac tgg gcc agt 1181  
Ile Thr Val Glu Met Val Ser Glu Glu Glu Glu Glu Asp Trp Ala Ser  
255 260 265

aga cac ttc cgg atc aac tat gcg gac gaa gcg cag gac gtg atg cat 1229  
Arg His Phe Arg Ile Asn Tyr Ala Asp Glu Ala Gln Asp Val Met His  
270 275 280

ttt aac tac aca ggc tgg ccc gat cac ggt gtg cct cca gca aac gcc 1277  
Phe Asn Tyr Thr Gly Trp Pro Asp His Gly Val Pro Pro Ala Asn Ala  
285 290 295

gcc gag agc atc ctg cag ttt gtg ttc aca gtg cga cag caa gcc gcc 1325  
Ala Glu Ser Ile Leu Gln Phe Val Phe Thr Val Arg Gln Gln Ala Ala  
300 305 310 315

aag agc aaa ggg ccc atg atc atc cac tgc agt gcg ggt gtg gga cgg 1373  
Lys Ser Lys Gly Pro Met Ile Ile His Cys Ser Ala Gly Val Gly Arg  
320 325 330

aca gga acc ttc att gcc ctg gac agg ctc ctg caa cac att cga gat 1421  
Thr Gly Thr Phe Ile Ala Leu Asp Arg Leu Leu Gln His Ile Arg Asp  
335 340 345

cat gaa ttt gtg gac atc tta ggg ctg gta tca gag atg cgc tca tac 1469  
His Glu Phe Val Asp Ile Leu Gly Leu Val Ser Glu Met Arg Ser Tyr

|  |     |     |      |
|--|-----|-----|------|
| 350  | 355 | 360 |      |
| cga atg tca atg gta cag aca gag gag cag tac att ttt atc cat cag    |     |     | 1517 |
| Arg Met Ser Met Val Gln Thr Glu Glu Gln Tyr Ile Phe Ile His Gln    |     |     |      |
| 365  | 370 | 375 |      |
| tgt gtg cag ctg atg tgg ctg agg aag aag caa cag ttc tgc atc agc    |     |     | 1565 |
| Cys Val Gln Leu Met Trp Leu Arg Lys Lys Gln Gln Phe Cys Ile Ser    |     |     |      |
| 380  | 385 | 390 | 395  |
| gac gtc atc tac gag aac gtc agc aaa tcc tag ttcggaatct ggagcggatga |     |     | 1618 |
| Asp Val Ile Tyr Glu Asn Val Ser Lys Ser                            |     |     |      |
| 400  | 405 |     |      |
| ggacatgata cctgcgcata ctccttggct tccagagttt ttataggggc ttttagtcac  |     |     | 1678 |
| tttgctaaat cgagtccttg ctgtgcagta tatggacaag gaggagattt acctcctaga  |     |     | 1738 |
| accaagaaga ccttaaggag cctacagtat catttggagt cttttcactt ctagatgttt  |     |     | 1798 |
| gatggaccaa attcagtaga attccagaaa ggtcaccaat gctccttgag gggcaggaag  |     |     | 1858 |
| cgcaatactt cctgatggct cagtggctc ttgtctgctc gggttgggtt gatttttttt   |     |     | 1918 |
| taagtgcaat aatttctgta taatttgat tttttacat tcacaattca gaatgttgaa    |     |     | 1978 |
| ttgttatctg cccacaccat caatcagtgc cacagccttg gaaataacca acatcattac  |     |     | 2038 |
| ggagttttat ctcacccctg gaaaggcatg gctacacagg aagacgtggt gatgaatctc  |     |     | 2098 |
| cttcaaagaa actgagcgag tgtgctcctc gctccaacct tgaagctacg ggtcaggagt  |     |     | 2158 |
| aggcaggcag agggaagaga gcggttctac tcacccatca gccagcttat cttttcctat  |     |     | 2218 |
| ttcaaatatg aaaacctgtg ttcaaagta gagtaggaaa aacattatat gtctgacttg   |     |     | 2278 |
| tcatagtggg tttcttcctt gttgacagtt gggagtttct tccgtggctc ttttgaacta  |     |     | 2338 |
| atgtcacggt cctttttgaa cagccagagt tgattcaaca gttttgagtc tgactctgaa  |     |     | 2398 |
| ctctgagata tcttggigcc tagccttcac gtttattttt ctctgtgtcc acctgtgtac  |     |     | 2458 |
| acaaaaacag tttctccaag agctataggc tgtaaaaatg cactttcitt ctccaccag   |     |     | 2518 |
| aggagctggg aattcagaag tcacgacaac aacaaactca gcatgtaagg acaggtattg  |     |     | 2578 |
| gacaccatcc ctttaagaaca ttgttgagtg tctctatgga ttccgacagg agattctctg |     |     | 2638 |
| ggctttcttt gcatttctgt tgtcagagtc attttaacct gtgtagctag tggcattata  |     |     | 2698 |
| ttctttggat ttgtatgat taaagtacat gattgtgtgt tgtgaccaatg aaaaaaaaaa  |     |     | 2758 |

aa

2760

&lt;210&gt; 880

&lt;211&gt; 405

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 880

Met Val Thr Glu Val Asn Pro Asn Val Val Val Ile Ser Val Leu Ala

1 5 10 15

Ile Leu Ser Thr Leu Leu Ile Gly Leu Leu Leu Val Thr Leu Val Ile

20 25 30

Leu Arg Lys Lys His Leu Gln Met Ala Arg Glu Cys Gly Ala Gly Thr

35 40 45

Phe Val Asn Phe Ala Ser Leu Glu Arg Glu Gly Lys Leu Pro Tyr Ser

50 55 60

Trp Arg Arg Ser Val Phe Ala Leu Leu Thr Leu Leu Pro Ser Cys Leu

65 70 75 80

Trp Thr Asp Tyr Leu Leu Ala Phe Tyr Ile Asn Pro Trp Ser Lys Asn

85 90 95

Gly Leu Lys Lys Arg Lys Leu Thr Asn Pro Val Gln Leu Asp Asp Phe

100 105 110

Asp Ser Tyr Ile Lys Asp Met Ala Lys Asp Ser Asp Tyr Lys Phe Ser

115 120 125

Leu Gln Phe Glu Glu Leu Lys Leu Ile Gly Leu Asp Ile Pro His Phe

130 135 140

Ala Ala Asp Leu Pro Leu Asn Arg Cys Lys Asn Arg Tyr Thr Asn Ile

145 150 155 160

Leu Pro Tyr Asp Phe Ser Arg Val Arg Leu Val Ser Met Asn Glu Glu

|   |     |     |
|---|-----|-----|
| 165   | 170 | 175 |
| Glu Gly Ala Asp Tyr Ile Asn Ala Asn Tyr Ile Pro Gly Tyr Asn Ser |     |     |
| 180   | 185 | 190 |
| Pro Gln Glu Tyr Ile Ala Thr Gln Gly Pro Leu Pro Glu Thr Arg Asn |     |     |
| 195   | 200 | 205 |
| Asp Phe Trp Lys Met Val Leu Gln Gln Lys Ser His Ile Ile Val Met |     |     |
| 210   | 215 | 220 |
| Leu Thr Gln Cys Asn Glu Lys Arg Arg Val Lys Cys Asp His Tyr Trp |     |     |
| 225   | 230 | 235 |
| Pro Phe Thr Glu Glu Pro Ile Ala Tyr Gly Asp Ile Thr Val Glu Met |     | 240 |
| 245   | 250 | 255 |
| Val Ser Glu Glu Glu Glu Asp Trp Ala Ser Arg His Phe Arg Ile     |     |     |
| 260   | 265 | 270 |
| Asn Tyr Ala Asp Glu Ala Gln Asp Val Met His Phe Asn Tyr Thr Gly |     |     |
| 275   | 280 | 285 |
| Trp Pro Asp His Gly Val Pro Pro Ala Asn Ala Ala Glu Ser Ile Leu |     |     |
| 290   | 295 | 300 |
| Gln Phe Val Phe Thr Val Arg Gln Gln Ala Ala Lys Ser Lys Gly Pro |     |     |
| 305   | 310 | 315 |
| Met Ile Ile His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile |     | 320 |
| 325   | 330 | 335 |
| Ala Leu Asp Arg Leu Leu Gln His Ile Arg Asp His Glu Phe Val Asp |     |     |
| 340   | 345 | 350 |
| Ile Leu Gly Leu Val Ser Glu Met Arg Ser Tyr Arg Met Ser Met Val |     |     |
| 355   | 360 | 365 |
| Gln Thr Glu Glu Gln Tyr Ile Phe Ile His Gln Cys Val Gln Leu Met |     |     |
| 370   | 375 | 380 |
| Trp Leu Arg Lys Lys Gln Gln Phe Cys Ile Ser Asp Val Ile Tyr Glu |     |     |
| 385   | 390 | 395 |
|   |     | 400 |

Asn Val Ser Lys Ser

405

<210> 881

<211> 493

<212> DNA

<213> Mus musculus

<400> 881

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tggacctgca gctgactaac aaggccctgc aggtcatgac agattttgct atccagttca 180
atcgtaacag ctttggcttg gcccctgctg caccctcca ggtgcacgta ccactcagcc 240
ccaaccagac cgtggagatc tccctgcctc ttaacacagt gggctcagtc ttgaagatgg 300
agcctctaaa caatcttcag gtggctgtga agaacaacat tgacgtcttc tacttcagca 360
ctttgtaccc actgcatgtc ctcttcgtgg aggatgggaa gatggaccgg cagatgttcc 420
tggccacatg gaaggacatt gccaacgaga acgaagccca gtccagatc agagactgcc 480
cgcttaacac aga

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493

<210> 882

<211> 2492

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (146).. (2275)

<400> 882

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 tttatctctg atttgagaat ctttttgatg cggaaaggag cataagaata atccaagcca 120  
 tgtggtaaaa tcggagtctg gcaag atg gaa agg tcc ccg ttt ctg ttg gcg 172  
 Met Glu Arg Ser Pro Phe Leu Leu Ala  
 1 5  
 tgc att ctt ctg ccc ctc gta aga gga cac agc ctt ttc acc tgt gag 220  
 Cys Ile Leu Leu Pro Leu Val Arg Gly His Ser Leu Phe Thr Cys Glu  
 10 15 20 25  
 cca atc acc gtt ccc aga tgt atg aaa atg act tac aac atg acg ttc 268  
 Pro Ile Thr Val Pro Arg Cys Met Lys Met Thr Tyr Asn Met Thr Phe  
 30 35 40  
 ttc cct aac ctg atg ggt cat tat gac cag ggg atc gct gct gtg gaa 316  
 Phe Pro Asn Leu Met Gly His Tyr Asp Gln Gly Ile Ala Ala Val Glu  
 45 50 55  
 atg ggg cac ttt ctg cat ctt gca aat cta gaa tgt tca cca aac att 364  
 Met Gly His Phe Leu His Leu Ala Asn Leu Glu Cys Ser Pro Asn Ile  
 60 65 70  
 gaa atg ttc ctt tgc caa gct ttt ata cca acc tgc aca gag caa att 412  
 Glu Met Phe Leu Cys Gln Ala Phe Ile Pro Thr Cys Thr Glu Gln Ile  
 75 80 85  
 cat gta gtt cta ccc tgt cgg aaa ttg tgt gag aaa ata gtt tct gat 460  
 His Val Val Leu Pro Cys Arg Lys Leu Cys Glu Lys Ile Val Ser Asp  
 90 95 100 105  
 tgc aaa aaa cta atg gac act ttt ggc atc cga tgg cct gaa gaa ctt 508  
 Cys Lys Lys Leu Met Asp Thr Phe Gly Ile Arg Trp Pro Glu Glu Leu  
 110 115 120  
 gaa tgt aac aga ttg cca cac tgt gat gac act gtt cct gta act tct 556  
 Glu Cys Asn Arg Leu Pro His Cys Asp Asp Thr Val Pro Val Thr Ser  
 125 130 135



cat cca cac aca gag ctt tct ggg cca cag aag aaa tca gat caa gtc 604  
 His Pro His Thr Glu Leu Ser Gly Pro Gln Lys Lys Ser Asp Gln Val  
 140 145 150  
 cca aga gac att gga ttt tgg tgt cca aag cac ctt agg act tcc ggg 652  
 Pro Arg Asp Ile Gly Phe Trp Cys Pro Lys His Leu Arg Thr Ser Gly  
 155 160 165  
 gac caa ggc tat agg ttt ctg gga att gaa cag tgt gcc cct ccg tgc 700  
 Asp Gln Gly Tyr Arg Phe Leu Gly Ile Glu Gln Cys Ala Pro Pro Cys  
 170 175 180 185  
 ccc aat atg tat ttt aaa agt gat gaa cta gac ttt gcc aaa agt ttc 748  
 Pro Asn Met Tyr Phe Lys Ser Asp Glu Leu Asp Phe Ala Lys Ser Phe  
 190 195 200  
 ata gga ata gtt tca ata ttt tgt ctt tgt gca act ctg ttc acg ttc 796  
 Ile Gly Ile Val Ser Ile Phe Cys Leu Cys Ala Thr Leu Phe Thr Phe  
 205 210 215  
 ctt aca ttt tta att gac gtt aga cga ttc aga tac cca gag aga cca 844  
 Leu Thr Phe Leu Ile Asp Val Arg Arg Phe Arg Tyr Pro Glu Arg Pro  
 220 225 230  
 att atc tat tac tct gtc tgc tac agc att gtc tct ctc atg tac ttc 892  
 Ile Ile Tyr Tyr Ser Val Cys Tyr Ser Ile Val Ser Leu Met Tyr Phe  
 235 240 245  
 gtg ggg ttt ttg ctg ggc aat agc aca gct tgt aat aag gca gac gag 940  
 Val Gly Phe Leu Leu Gly Asn Ser Thr Ala Cys Asn Lys Ala Asp Glu  
 250 255 260 265  
 aag ctg gag ctc ggg gac acc gtt gtc cta ggg tca aag aat aag gct 988  
 Lys Leu Glu Leu Gly Asp Thr Val Val Leu Gly Ser Lys Asn Lys Ala  
 270 275 280  
 tgc agt gtg gta ttt atg ttt ctg tat ttt ttt aca atg gct ggc acc 1036  
 Cys Ser Val Val Phe Met Phe Leu Tyr Phe Phe Thr Met Ala Gly Thr

|   |     |     |      |
|---|-----|-----|------|
| 285   | 290 | 295 |      |
| gtg tgg tgg gtg att ctc acc att acg tgg ttc tta gct gcc ggg aga |     |     | 1084 |
| Val Trp Trp Val Ile Leu Thr Ile Thr Trp Phe Leu Ala Ala Gly Arg |     |     |      |
| 300   | 305 | 310 |      |
| aaa tgg agt tgc gaa gct att gaa caa aaa gca gtg tgg ttc cat gcc |     |     | 1132 |
| Lys Trp Ser Cys Glu Ala Ile Glu Gln Lys Ala Val Trp Phe His Ala |     |     |      |
| 315   | 320 | 325 |      |
| gtt gcc tgg ggg gcg ccc ggg ttc ctg acc gtc atg ctg ctc gct atg |     |     | 1180 |
| Val Ala Trp Gly Ala Pro Gly Phe Leu Thr Val Met Leu Leu Ala Met |     |     |      |
| 330   | 335 | 340 | 345  |
| aat aag gtt gaa gga gac aac att agc ggc gtt tgc ttc gtt ggc ctg |     |     | 1228 |
| Asn Lys Val Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu |     |     |      |
| 350   | 355 | 360 |      |
| tat gac ctg gac gcc tct cgc tac ttc gtc ctt ctg cct ctg tgc ctc |     |     | 1276 |
| Tyr Asp Leu Asp Ala Ser Arg Tyr Phe Val Leu Leu Pro Leu Cys Leu |     |     |      |
| 365   | 370 | 375 |      |
| tgc gta ttt gtt ggg ctg tct ctc ctc tta gcc ggc atc atc tcc ttg |     |     | 1324 |
| Cys Val Phe Val Gly Leu Ser Leu Leu Leu Ala Gly Ile Ile Ser Leu |     |     |      |
| 380   | 385 | 390 |      |
| aat cat gtc cga caa gtc ata cag cat gat ggt cgg aac caa gag aag |     |     | 1372 |
| Asn His Val Arg Gln Val Ile Gln His Asp Gly Arg Asn Gln Glu Lys |     |     |      |
| 395   | 400 | 405 |      |
| cta aag aaa ttc atg att cgc atc gga gtc ttc agt ggc ctg tat ctt |     |     | 1420 |
| Leu Lys Lys Phe Met Ile Arg Ile Gly Val Phe Ser Gly Leu Tyr Leu |     |     |      |
| 410   | 415 | 420 | 425  |
| gtg ccc tta gig aca ctt ctc ggt tgc tat gtc tat gag cta gtg aac |     |     | 1468 |
| Val Pro Leu Val Thr Leu Leu Gly Cys Tyr Val Tyr Glu Leu Val Asn |     |     |      |
| 430   | 435 | 440 |      |
| agg atc acc tgg gag atg aca tgg ttc tct gat cat tgt cac cag tac |     |     | 1516 |

Arg Ile Thr Trp Glu Met Thr Trp Phe Ser Asp His Cys His Gln Tyr  
 445 450 455  
 cgc atc ccg tgc cct tac cag gca aat cca aaa gct cga cca gaa ttg 1564  
 Arg Ile Pro Cys Pro Tyr Gln Ala Asn Pro Lys Ala Arg Pro Glu Leu  
 460 465 470  
 gct tta ttt atg ata aaa tat ctg atg aca tta att gtt ggt atc tct 1612  
 Ala Leu Phe Met Ile Lys Tyr Leu Met Thr Leu Ile Val Gly Ile Ser  
 475 480 485  
 gcg gtc ttc tgg gtt gga agc aaa aag acg tgc aca gaa tgg gcc ggg 1660  
 Ala Val Phe Trp Val Gly Ser Lys Lys Thr Cys Thr Glu Trp Ala Gly  
 490 495 500 505  
 ttc ttt aag cga aac cgc aag cga gac ccc atc agt gag agc cgc cga 1708  
 Phe Phe Lys Arg Asn Arg Lys Arg Asp Pro Ile Ser Glu Ser Arg Arg  
 510 515 520  
 gtg ctg caa gag tcc tgt gag ttc ttc ctg aag cac aac tct aaa gtg 1756  
 Val Leu Gln Glu Ser Cys Glu Phe Phe Leu Lys His Asn Ser Lys Val  
 525 530 535  
 aag cac aag aag aag cat ggc gca cca ggg cct cat agg ctg aag gtc 1804  
 Lys His Lys Lys Lys His Gly Ala Pro Gly Pro His Arg Leu Lys Val  
 540 545 550  
 att tcc aag tcc atg gga act agc aca gga gcg acc aca aat cat ggc 1852  
 Ile Ser Lys Ser Met Gly Thr Ser Thr Gly Ala Thr Thr Asn His Gly  
 555 560 565  
 acc tct gcc atg gca atc gct gac cat gat tac tta ggg caa gaa act 1900  
 Thr Ser Ala Met Ala Ile Ala Asp His Asp Tyr Leu Gly Gln Glu Thr  
 570 575 580 585  
 tca aca gaa gtc cac acc tcc cca gaa gca tcc gtc aaa gag gga cga 1948  
 Ser Thr Glu Val His Thr Ser Pro Glu Ala Ser Val Lys Glu Gly Arg  
 590 595 600

gca gac cga gca aac act ccc agc gcc aaa gat cgg gac tgt ggg gaa 1996  
 Ala Asp Arg Ala Asn Thr Pro Ser Ala Lys Asp Arg Asp Cys Gly Glu  
 605 610 615  
 tct gca ggg ccc agt tcc aag ctc tct ggg aac cgg aac ggc agg gaa 2044  
 Ser Ala Gly Pro Ser Ser Lys Leu Ser Gly Asn Arg Asn Gly Arg Glu  
 620 625 630  
 agc cga gcg ggc ggc ctg aag gag aga agc aat gga tca gag ggg gct 2092  
 Ser Arg Ala Gly Gly Leu Lys Glu Arg Ser Asn Gly Ser Glu Gly Ala  
 635 640 645  
 cca agt gaa gga agg gta agt cca aag agc agc gtt cct gag act ggc 2140  
 Pro Ser Glu Gly Arg Val Ser Pro Lys Ser Ser Val Pro Glu Thr Gly  
 650 655 660 665  
 ctg ata gac tgc agc act tca cag gcc gcc agt tct cca gaa cca acc 2188  
 Leu Ile Asp Cys Ser Thr Ser Gln Ala Ala Ser Ser Pro Glu Pro Thr  
 670 675 680  
 agc ctc aag ggc tcc aca tct ctg cct gtt cac tca gct tcc aga gct 2236  
 Ser Leu Lys Gly Ser Thr Ser Leu Pro Val His Ser Ala Ser Arg Ala  
 685 690 695  
 agg aaa gag cag ggt gct ggc agc cat tcc gac gct tga agaaaactgt 2285  
 Arg Lys Glu Gln Gly Ala Gly Ser His Ser Asp Ala  
 700 705 710  
 ctcggtcccc cagaagcaca tgtatgttac actggagatg accaactgat ttgtcttata 2345  
 aaggccactg ttagctggg agagtagccc agtggtagag cgccacactg gaatactgag 2405  
 gacctggggt tgtctcccag cactgcaaaa ggaaaattca ctgttacagt cttccttgca 2465  
 cttaaccagc ttgtctatg tttttt 2492

&lt;210&gt; 883

&lt;211&gt; 709

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 883

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Met Glu Arg Ser Pro Phe Leu Leu Ala Cys Ile Leu Leu Pro Leu Val
  1             5             10             15
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
          20             25             30
Met Lys Met Thr Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
          35             40             45
Tyr Asp Gln Gly Ile Ala Ala Val Glu Met Gly His Phe Leu His Leu
          50             55             60
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Met Phe Leu Cys Gln Ala
          65             70             75             80
Phe Ile Pro Thr Cys Thr Glu Gln Ile His Val Val Leu Pro Cys Arg
          85             90             95
Lys Leu Cys Glu Lys Ile Val Ser Asp Cys Lys Lys Leu Met Asp Thr
          100            105            110
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asn Arg Leu Pro His
          115            120            125
Cys Asp Asp Thr Val Pro Val Thr Ser His Pro His Thr Glu Leu Ser
          130            135            140
Gly Pro Gln Lys Lys Ser Asp Gln Val Pro Arg Asp Ile Gly Phe Trp
          145            150            155            160
Cys Pro Lys His Leu Arg Thr Ser Gly Asp Gln Gly Tyr Arg Phe Leu
          165            170            175
Gly Ile Glu Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
          180            185            190
Asp Glu Leu Asp Phe Ala Lys Ser Phe Ile Gly Ile Val Ser Ile Phe
          195            200            205

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Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val  
 210 215 220  
 Arg Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Tyr Tyr Ser Val Cys  
 225 230 235 240  
 Tyr Ser Ile Val Ser Leu Met Tyr Phe Val Gly Phe Leu Leu Gly Asn  
 245 250 255  
 Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp Thr  
 260 265 270  
 Val Val Leu Gly Ser Lys Asn Lys Ala Cys Ser Val Val Phe Met Phe  
 275 280 285  
 Leu Tyr Phe Phe Thr Met Ala Gly Thr Val Trp Trp Val Ile Leu Thr  
 290 295 300  
 Ile Thr Trp Phe Leu Ala Ala Gly Arg Lys Trp Ser Cys Glu Ala Ile  
 305 310 315 320  
 Glu Gln Lys Ala Val Trp Phe His Ala Val Ala Trp Gly Ala Pro Gly  
 325 330 335  
 Phe Leu Thr Val Met Leu Leu Ala Met Asn Lys Val Glu Gly Asp Asn  
 340 345 350  
 Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Leu Asp Ala Ser Arg  
 355 360 365  
 Tyr Phe Val Leu Leu Pro Leu Cys Leu Cys Val Phe Val Gly Leu Ser  
 370 375 380  
 Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn His Val Arg Gln Val Ile  
 385 390 395 400  
 Gln His Asp Gly Arg Asn Gln Glu Lys Leu Lys Lys Phe Met Ile Arg  
 405 410 415  
 Ile Gly Val Phe Ser Gly Leu Tyr Leu Val Pro Leu Val Thr Leu Leu  
 420 425 430  
 Gly Cys Tyr Val Tyr Glu Leu Val Asn Arg Ile Thr Trp Glu Met Thr

|   |     |     |
|---|-----|-----|
| 435   | 440 | 445 |
| Trp Phe Ser Asp His Cys His Gln Tyr Arg Ile Pro Cys Pro Tyr Gln |     |     |
| 450   | 455 | 460 |
| Ala Asn Pro Lys Ala Arg Pro Glu Leu Ala Leu Phe Met Ile Lys Tyr |     |     |
| 465   | 470 | 475 |
| Leu Met Thr Leu Ile Val Gly Ile Ser Ala Val Phe Trp Val Gly Ser |     |     |
| 485   | 490 | 495 |
| Lys Lys Thr Cys Thr Glu Trp Ala Gly Phe Phe Lys Arg Asn Arg Lys |     |     |
| 500   | 505 | 510 |
| Arg Asp Pro Ile Ser Glu Ser Arg Arg Val Leu Gln Glu Ser Cys Glu |     |     |
| 515   | 520 | 525 |
| Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys Lys His Gly |     |     |
| 530   | 535 | 540 |
| Ala Pro Gly Pro His Arg Leu Lys Val Ile Ser Lys Ser Met Gly Thr |     |     |
| 545   | 550 | 555 |
| Ser Thr Gly Ala Thr Thr Asn His Gly Thr Ser Ala Met Ala Ile Ala |     |     |
| 565   | 570 | 575 |
| Asp His Asp Tyr Leu Gly Gln Glu Thr Ser Thr Glu Val His Thr Ser |     |     |
| 580   | 585 | 590 |
| Pro Glu Ala Ser Val Lys Glu Gly Arg Ala Asp Arg Ala Asn Thr Pro |     |     |
| 595   | 600 | 605 |
| Ser Ala Lys Asp Arg Asp Cys Gly Glu Ser Ala Gly Pro Ser Ser Lys |     |     |
| 610   | 615 | 620 |
| Leu Ser Gly Asn Arg Asn Gly Arg Glu Ser Arg Ala Gly Gly Leu Lys |     |     |
| 625   | 630 | 635 |
| Glu Arg Ser Asn Gly Ser Glu Gly Ala Pro Ser Glu Gly Arg Val Ser |     |     |
| 645   | 650 | 655 |
| Pro Lys Ser Ser Val Pro Glu Thr Gly Leu Ile Asp Cys Ser Thr Ser |     |     |
| 660   | 665 | 670 |

Gln Ala Ala Ser Ser Pro Glu Pro Thr Ser Leu Lys Gly Ser Thr Ser  
 675 680 685  
 Leu Pro Val His Ser Ala Ser Arg Ala Arg Lys Glu Gln Gly Ala Gly  
 690 695 700  
 Ser His Ser Asp Ala  
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<210> 884

<211> 1402

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (192).. (950)

<400> 884

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 ggcgcgcgct cagcggcggc ggcgggcgcc cgacgacgca gcagcgggtgc tcgcgtcgg 120  
 ctccccggcc acgggacgcg gtcgcacccg gcgaggggtgc agcccccgga gcggcggcgg 180  
 cggcgggaaa a atg aag aac gaa att gcg gct gtt gtc ttc ttt ttc aca 230  
 Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr  
 1 5 10  
 agg cta gtt cga aag cat gac aag ttg aaa aaa gaa gca gtt gag agg 278  
 Arg Leu Val Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg  
 15 20 25  
 ttt gct gag aaa tta act caa ata ctt caa gag aaa tat aaa aat cac 326  
 Phe Ala Glu Lys Leu Thr Gln Ile Leu Gln Glu Lys Tyr Lys Asn His  
 30 35 40 45



2181/2644

|   |     |     |     |      |
|---|-----|-----|-----|------|
| 190   | 195 | 200 | 205 |      |
| cct cct cct gtt cca ttt gct tat cca aat cca gga agg aag aat aaa   |     |     |     | 854  |
| Pro Pro Pro Val Pro Phe Ala Tyr Pro Asn Pro Gly Arg Lys Asn Lys   |     |     |     |      |
|   | 210 | 215 | 220 |      |
| cca ttc cgc cca att cca gtg aca tgg gta cct cct cct gga atg cat   |     |     |     | 902  |
| Pro Phe Arg Pro Ile Pro Val Thr Trp Val Pro Pro Pro Gly Met His   |     |     |     |      |
|   | 225 | 230 | 235 |      |
| tgt gac cga aat cac tgg att aat cct cac atg tta gca cct cac tag   |     |     |     | 950  |
| Cys Asp Arg Asn His Trp Ile Asn Pro His Met Leu Ala Pro His       |     |     |     |      |
|   | 240 | 245 | 250 |      |
| ctcctttcat tgtgttgatg tcatgttgct agaaaggaag acataccttc ctatatacta |     |     |     | 1010 |
| agagttcata ctgttagtga agtttagatgg gcaaaacat cagacttatt tttatagaaa |     |     |     | 1070 |
| agctattgag aataatcttt cttaaagtat atatatatat atatatgcac tttagatata |     |     |     | 1130 |
| ttgatatagt ttgagaaact ttattaaagt tagtcaagtg cctgagtttt taatattgga |     |     |     | 1190 |
| cttgagtatt tatatattgt gcattgactc tgttgatac aaaaacactg taggagcggg  |     |     |     | 1250 |
| cgaatgtgtc tagcaccttt gagcatttac tttatggaga gtatataagt tatttataca |     |     |     | 1310 |
| gaaggacatc tattttatgt cattatttag aagaattgtg tgaaatcatg tagttgcaa  |     |     |     | 1370 |
| taaaaagtag ttgaggcat gacaaaaaaa aa                                |     |     |     | 1402 |

&lt;210&gt; 885

&lt;211&gt; 252

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 885

Met Lys Asn Glu Ile Ala Ala Val Val Phe Phe Phe Thr Arg Leu Val

1

5

10

15

Arg Lys His Asp Lys Leu Lys Lys Glu Ala Val Glu Arg Phe Ala Glu

20

25

30

Lys Leu Thr Gln Ile Leu Gln Glu Lys Tyr Lys Asn His Trp Tyr Pro  
 35 40 45  
 Glu Lys Pro Ser Lys Gly Gln Ala Tyr Arg Cys Ile Arg Val Asn Lys  
 50 55 60  
 Phe Gln Arg Val Asp Pro Asp Val Leu Lys Ala Cys Glu Asn Ser Cys  
 65 70 75 80  
 Ile Leu Tyr Ser Asp Leu Gly Leu Pro Lys Glu Leu Thr Leu Trp Val  
 85 90 95  
 Asp Pro Cys Glu Val Cys Cys Arg Tyr Gly Glu Lys Asn Asn Ala Phe  
 100 105 110  
 Ile Val Ala Ser Phe Glu Asn Glu Asp Glu Asn Lys Asp Glu Ile Ser  
 115 120 125  
 Lys Lys Val Ser Arg Ala Leu Asp Lys Val Thr Ser Asp Tyr His Ser  
 130 135 140  
 Gly Ser Ser Ser Ser Asp Glu Asp Thr Ser Lys Glu Val Asp Val Lys  
 145 150 155 160  
 Pro Ser Ser Val Ala Ala Thr Pro Ser Pro Val Tyr Gln Ile Ser Glu  
 165 170 175  
 Leu Ile Phe Pro Pro Leu Pro Met Trp His Pro Leu Pro Arg Lys Lys  
 180 185 190  
 Pro Gly Met Tyr Arg Gly Ser Gly His Gln Thr His Tyr Pro Pro Pro  
 195 200 205  
 Val Pro Phe Ala Tyr Pro Asn Pro Gly Arg Lys Asn Lys Pro Phe Arg  
 210 215 220  
 Pro Ile Pro Val Thr Trp Val Pro Pro Pro Gly Met His Cys Asp Arg  
 225 230 235 240  
 Asn His Trp Ile Asn Pro His Met Leu Ala Pro His  
 245 250

&lt;210&gt; 886

&lt;211&gt; 2965

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (595).. (2832)

&lt;400&gt; 886

ggacacgagg tgtgggagcc gctgcagaag ggaataaaga gacatgcagg gatttgtgag 60  
 gttacggcgc cccagctgca agatgcacta ggccggctga agccgggtgc ggattgactt 120  
 gttggaaccg tagtgctctg caccggagtg tggatgagtt gaagttgctt tccccgggct 180  
 cgttctccac gtccgccgag aggaatccga gcggagaggc agtcacttcg tcttgccatt 240  
 gattgggtat cgggagcttt ttcttccctg ctctctttct ttctctccgt cttgttgcatt 300  
 gcaagaaaat tacagtcgc tgctcgcccg ccttgggtgc gagatcttct gcccggcctc 360  
 tctcccgctg attgtgcagc ccaaagatga aagaccgaaa gggagaagtt aaacaaatcg 420  
 cccacatgcg ctggatcagt ccacggcttg gggaaaggca tccagagaag gtgggagcgg 480  
 agagtttgaa gtctttacag gcgggaagat ggcggactgg agctgaaagt gttgattggg 540  
 aaacttgggt gattcttgtg tttatttaca atcctcttga cccaggcagg acac atg 597

Met

1

cag gcc aaa aaa cgc tat ttc atc ctg ctc tca gct ggc tct tct ctc 645  
 Gln Ala Lys Lys Arg Tyr Phe Ile Leu Leu Ser Ala Gly Ser Ser Leu

5

10

15

gcc ctt ttg ttt tat ttt gga ggc gtg cag ttt agg gca tgc agg agc 693  
 Ala Leu Leu Phe Tyr Phe Gly Gly Val Gln Phe Arg Ala Ser Arg Ser

20

25

30

cac agc cgg aga gaa gag cac agt ggt cgg aat ggc ttg cac cag ccc 741

His Ser Arg Arg Glu Glu His Ser Gly Arg Asn Gly Leu His Gln Pro  
 35 40 45  
 agt ccg gat cat ttc tgg ccc cgc ttc ccg gag cct ctg cgc ccc ttc 789  
 Ser Pro Asp His Phe Trp Pro Arg Phe Pro Glu Pro Leu Arg Pro Phe  
 50 55 60 65  
 ttt cct tgg gat caa ttg gaa aac gag gat tcc agc gtg cac att tcc 837  
 Phe Pro Trp Asp Gln Leu Glu Asn Glu Asp Ser Ser Val His Ile Ser  
 70 75 80  
 ccc cgg cag aag cga gac gcc aac tcg agc atc tac aaa ggc aag aag 885  
 Pro Arg Gln Lys Arg Asp Ala Asn Ser Ser Ile Tyr Lys Gly Lys Lys  
 85 90 95  
 tgc cgc atg gag tcc tgc ttc gat ttc acc ctt tgc aag aaa aac ggc 933  
 Cys Arg Met Glu Ser Cys Phe Asp Phe Thr Leu Cys Lys Lys Asn Gly  
 100 105 110  
 ttc aaa gtc tac gtg tac ccg cag cag aaa ggg gag aaa atc gcc gaa 981  
 Phe Lys Val Tyr Val Tyr Pro Gln Gln Lys Gly Glu Lys Ile Ala Glu  
 115 120 125  
 agt tac caa aac att cta gcg gcc atc gag ggc tcc agg ttc tac acc 1029  
 Ser Tyr Gln Asn Ile Leu Ala Ala Ile Glu Gly Ser Arg Phe Tyr Thr  
 130 135 140 145  
 tcg gac ccc agc cag gcg tgc ctc ttt gtc ttg agt ctg gat act tta 1077  
 Ser Asp Pro Ser Gln Ala Cys Leu Phe Val Leu Ser Leu Asp Thr Leu  
 150 155 160  
 gac aga gac cag tta tca cct cag tat gtg cac aat ttg aga tcc aaa 1125  
 Asp Arg Asp Gln Leu Ser Pro Gln Tyr Val His Asn Leu Arg Ser Lys  
 165 170 175  
 gtg cag agt ctc cac ttg tgg aac aat ggt agg aat cat tta att ttt 1173  
 Val Gln Ser Leu His Leu Trp Asn Asn Gly Arg Asn His Leu Ile Phe  
 180 185 190

aat tta tat tct ggc act tgg cct gac tac act gag gac gtg ggg ttt 1221  
 Asn Leu Tyr Ser Gly Thr Trp Pro Asp Tyr Thr Glu Asp Val Gly Phe  
 195 200 205  
 gac atc ggc cag gcg atg ctg gcc aaa gcc acg atc agt act gaa aac 1269  
 Asp Ile Gly Gln Ala Met Leu Ala Lys Ala Thr Ile Ser Thr Glu Asn  
 210 215 220 225  
 ttc cga cca aac ttt gat gtt tct att ccc ctc ttt tct aag gat cat 1317  
 Phe Arg Pro Asn Phe Asp Val Ser Ile Pro Leu Phe Ser Lys Asp His  
 230 235 240  
 ccc agg aca gga ggg gag agg ggg ttt ttg aaa ttt aac acc atc cct 1365  
 Pro Arg Thr Gly Gly Glu Arg Gly Phe Leu Lys Phe Asn Thr Ile Pro  
 245 250 255  
 cct ctc agg aag tac atg ctg gta ttc aag ggg aag cgg tac ctg aca 1413  
 Pro Leu Arg Lys Tyr Met Leu Val Phe Lys Gly Lys Arg Tyr Leu Thr  
 260 265 270  
 ggg ata ggg tca gac acc agg aat gcc tta tat cac gtc cat aac ggg 1461  
 Gly Ile Gly Ser Asp Thr Arg Asn Ala Leu Tyr His Val His Asn Gly  
 275 280 285  
 gag gac gtc ttg ctc ctc acc acc tgc aag cat ggc aaa gac tgg caa 1509  
 Glu Asp Val Leu Leu Leu Thr Thr Cys Lys His Gly Lys Asp Trp Gln  
 290 295 300 305  
 aag cac aag gat tct cgc tgt gac aga gac aac acc gag tat gag aaa 1557  
 Lys His Lys Asp Ser Arg Cys Asp Arg Asp Asn Thr Glu Tyr Glu Lys  
 310 315 320  
 tat gat tat cgg gaa atg ctg cac aat gcc act ttc tgt ctg gtt cct 1605  
 Tyr Asp Tyr Arg Glu Met Leu His Asn Ala Thr Phe Cys Leu Val Pro.  
 325 330 335  
 cgt ggt cgc agg ctt ggg tcc ttc aga ttc ctg gag gct ttg cag gct 1653  
 Arg Gly Arg Arg Leu Gly Ser Phe Arg Phe Leu Glu Ala Leu Gln Ala

|   |      |     |     |
|---|------|-----|-----|
| 340   | 345  | 350 |     |
| gcc tgt gtc cct gta atg ctc agc aac gga tgg gag ttg cca ttc tcc | 1701 |     |     |
| Ala Cys Val Pro Val Met Leu Ser Asn Gly Trp Glu Leu Pro Phe Ser |      |     |     |
| 355   | 360  | 365 |     |
| gaa gtg att aat tgg aac caa gct gcc gtc ata ggc gat gag aga ttg | 1749 |     |     |
| Glu Val Ile Asn Trp Asn Gln Ala Ala Val Ile Gly Asp Glu Arg Leu |      |     |     |
| 370   | 375  | 380 | 385 |
| cta tta cag att cct tct aca atc agg tct att cat cag gat aaa atc | 1797 |     |     |
| Leu Leu Gln Ile Pro Ser Thr Ile Arg Ser Ile His Gln Asp Lys Ile |      |     |     |
| 390   | 395  | 400 |     |
| cta gca ctt aga cag cag aca cag ttc ttg tgg gag gct tat ttt tct | 1845 |     |     |
| Leu Ala Leu Arg Gln Gln Thr Gln Phe Leu Trp Glu Ala Tyr Phe Ser |      |     |     |
| 405   | 410  | 415 |     |
| tca gtt gag aag att gta tta act aca cta gag att att cag gac aga | 1893 |     |     |
| Ser Val Glu Lys Ile Val Leu Thr Thr Leu Glu Ile Ile Gln Asp Arg |      |     |     |
| 420   | 425  | 430 |     |
| ata ttc aag cac ata tca cgt aac agt tta ata tgg aac aaa cat cct | 1941 |     |     |
| Ile Phe Lys His Ile Ser Arg Asn Ser Leu Ile Trp Asn Lys His Pro |      |     |     |
| 435   | 440  | 445 |     |
| gga gga ttg ttc gtc cta ccg cag tat tca tct tac ctg gga gat ttc | 1989 |     |     |
| Gly Gly Leu Phe Val Leu Pro Gln Tyr Ser Ser Tyr Leu Gly Asp Phe |      |     |     |
| 450   | 455  | 460 | 465 |
| cct tac tac tat gct aat tta ggt tta aag ccc ccc tcc aaa ttc act | 2037 |     |     |
| Pro Tyr Tyr Tyr Ala Asn Leu Gly Leu Lys Pro Pro Ser Lys Phe Thr |      |     |     |
| 470   | 475  | 480 |     |
| gca gtc atc cat cct gtg act ccc ctg gtc tct cag tcc cag cca gtg | 2085 |     |     |
| Ala Val Ile His Pro Val Thr Pro Leu Val Ser Gln Ser Gln Pro Val |      |     |     |
| 485   | 490  | 495 |     |
| ttg aag ctt ctt gtg gct gca gcc aaa tcc cag tac tgt gcg cag atc | 2133 |     |     |

Leu Lys Leu Leu Val Ala Ala Ala Lys Ser Gln Tyr Cys Ala Gln Ile  
 500 505 510  
 ata gtt ctg tgg aat tgt gac aag cct cta cca gcc aaa cat cgc tgg 2181  
 Ile Val Leu Trp Asn Cys Asp Lys Pro Leu Pro Ala Lys His Arg Trp  
 515 520 525  
 cct gcc act gcc gtg cct gtc atc gtc att gaa gga gaa agc aag gtt 2229  
 Pro Ala Thr Ala Val Pro Val Ile Val Ile Glu Gly Glu Ser Lys Val  
 530 535 540 545  
 atg agc cgg ttt ctg ccc tat gac aac atc atc act gat gct gtg ctc 2277  
 Met Ser Arg Phe Leu Pro Tyr Asp Asn Ile Ile Thr Asp Ala Val Leu  
 550 555 560  
 agc ctg gat gag gac act gtg ctt tca act acg gaa gtg gat ttt gcc 2325  
 Ser Leu Asp Glu Asp Thr Val Leu Ser Thr Thr Glu Val Asp Phe Ala  
 565 570 575  
 ttc acc gta tgg cag agc ttc cca gag agg att gtg gga tat cct gct 2373  
 Phe Thr Val Trp Gln Ser Phe Pro Glu Arg Ile Val Gly Tyr Pro Ala  
 580 585 590  
 cgc agt cat ttc tgg gat aac tca aag gag cgg tgg gga tat aca tcc 2421  
 Arg Ser His Phe Trp Asp Asn Ser Lys Glu Arg Trp Gly Tyr Thr Ser  
 595 600 605  
 aag tgg acg aat gac tac tcc atg gtg ttg aca gga gct gct atc tac 2469  
 Lys Trp Thr Asn Asp Tyr Ser Met Val Leu Thr Gly Ala Ala Ile Tyr  
 610 615 620 625  
 cac aaa tat tat cac tac ctg tat tcc cat tac ctg cca gcc agc ctg 2517  
 His Lys Tyr Tyr His Tyr Leu Tyr Ser His Tyr Leu Pro Ala Ser Leu  
 630 635 640  
 aag aac atg gta gac caa ctg gcc aac tgt gag gac att ctc atg aat 2565  
 Lys Asn Met Val Asp Gln Leu Ala Asn Cys Glu Asp Ile Leu Met Asn  
 645 650 655



ttc ctg gtg tct gct gtg aca aaa ttg cct cca atc aaa gtg acc cag 2613  
 Phe Leu Val Ser Ala Val Thr Lys Leu Pro Pro Ile Lys Val Thr Gln  
 660 665 670  
 aag aaa cag tat aag gag aca atg atg gga cag act tcc cga gca tcc 2661  
 Lys Lys Gln Tyr Lys Glu Thr Met Met Gly Gln Thr Ser Arg Ala Ser  
 675 680 685  
 cgc tgg gcc gac cct gac cac ttt gcc cag cga cag agc tgc atg aat 2709  
 Arg Trp Ala Asp Pro Asp His Phe Ala Gln Arg Gln Ser Cys Met Asn  
 690 695 700 705  
 aca ttt gcc agc tgg ttt ggc tac atg ccg ctg atc cat tct cag atg 2757  
 Thr Phe Ala Ser Trp Phe Gly Tyr Met Pro Leu Ile His Ser Gln Met  
 710 715 720  
 agg ctg gac ccg gtc ctc ttt aaa gac caa gtc tca att ctg agg aag 2805  
 Arg Leu Asp Pro Val Leu Phe Lys Asp Gln Val Ser Ile Leu Arg Lys  
 725 730 735  
 aaa tac aga gac att gaa cga ctt tga ggaagccgac cgagtggggg 2852  
 Lys Tyr Arg Asp Ile Glu Arg Leu  
 740 745  
 aggggaagca agacgggagt ccagctgctt ctctcctcct tcccaatgca gatccctcac 2912  
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&lt;210&gt; 887

&lt;211&gt; 745

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 887

Met Gln Ala Lys Lys Arg Tyr Phe Ile Leu Leu Ser Ala Gly Ser Ser

1

5

10

15

Leu Ala Leu Leu Phe Tyr Phe Gly Gly Val Gln Phe Arg Ala Ser Arg  
                     20                                    25                                    30  
 Ser His Ser Arg Arg Glu Glu His Ser Gly Arg Asn Gly Leu His Gln  
                     35                                    40                                    45  
 Pro Ser Pro Asp His Phe Trp Pro Arg Phe Pro Glu Pro Leu Arg Pro  
                     50                                    55                                    60  
 Phe Phe Pro Trp Asp Gln Leu Glu Asn Glu Asp Ser Ser Val His Ile  
                     65                                    70                                    75                                    80  
 Ser Pro Arg Gln Lys Arg Asp Ala Asn Ser Ser Ile Tyr Lys Gly Lys  
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 Lys Cys Arg Met Glu Ser Cys Phe Asp Phe Thr Leu Cys Lys Lys Asn  
                     100                                    105                                    110  
 Gly Phe Lys Val Tyr Val Tyr Pro Gln Gln Lys Gly Glu Lys Ile Ala  
                     115                                    120                                    125  
 Glu Ser Tyr Gln Asn Ile Leu Ala Ala Ile Glu Gly Ser Arg Phe Tyr  
                     130                                    135                                    140  
 Thr Ser Asp Pro Ser Gln Ala Cys Leu Phe Val Leu Ser Leu Asp Thr  
                     145                                    150                                    155                                    160  
 Leu Asp Arg Asp Gln Leu Ser Pro Gln Tyr Val His Asn Leu Arg Ser  
                                     165                                    170                                    175  
 Lys Val Gln Ser Leu His Leu Trp Asn Asn Gly Arg Asn His Leu Ile  
                     180                                    185                                    190  
 Phe Asn Leu Tyr Ser Gly Thr Trp Pro Asp Tyr Thr Glu Asp Val Gly  
                     195                                    200                                    205  
 Phe Asp Ile Gly Gln Ala Met Leu Ala Lys Ala Thr Ile Ser Thr Glu  
                     210                                    215                                    220  
 Asn Phe Arg Pro Asn Phe Asp Val Ser Ile Pro Leu Phe Ser Lys Asp  
                     225                                    230                                    235                                    240  
 His Pro Arg Thr Gly Gly Glu Arg Gly Phe Leu Lys Phe Asn Thr Ile

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 245 |     | 250 |     | 255 |     |     |     |     |     |     |     |     |     |     |
| Pro | Pro | Leu | Arg | Lys | Tyr | Met | Leu | Val | Phe | Lys | Gly | Lys | Arg | Tyr | Leu |
|     | 260 |     | 265 |     | 270 |     |     |     |     |     |     |     |     |     |     |
| Thr | Gly | Ile | Gly | Ser | Asp | Thr | Arg | Asn | Ala | Leu | Tyr | His | Val | His | Asn |
|     | 275 |     | 280 |     | 285 |     |     |     |     |     |     |     |     |     |     |
| Gly | Glu | Asp | Val | Leu | Leu | Leu | Thr | Thr | Cys | Lys | His | Gly | Lys | Asp | Trp |
|     | 290 |     | 295 |     | 300 |     |     |     |     |     |     |     |     |     |     |
| Gln | Lys | His | Lys | Asp | Ser | Arg | Cys | Asp | Arg | Asp | Asn | Thr | Glu | Tyr | Glu |
| 305 |     |     | 310 |     | 315 |     |     |     |     |     |     |     |     |     | 320 |
| Lys | Tyr | Asp | Tyr | Arg | Glu | Met | Leu | His | Asn | Ala | Thr | Phe | Cys | Leu | Val |
|     | 325 |     | 330 |     | 335 |     |     |     |     |     |     |     |     |     |     |
| Pro | Arg | Gly | Arg | Arg | Leu | Gly | Ser | Phe | Arg | Phe | Leu | Glu | Ala | Leu | Gln |
|     | 340 |     | 345 |     | 350 |     |     |     |     |     |     |     |     |     |     |
| Ala | Ala | Cys | Val | Pro | Val | Met | Leu | Ser | Asn | Gly | Trp | Glu | Leu | Pro | Phe |
|     | 355 |     | 360 |     | 365 |     |     |     |     |     |     |     |     |     |     |
| Ser | Glu | Val | Ile | Asn | Trp | Asn | Gln | Ala | Ala | Val | Ile | Gly | Asp | Glu | Arg |
|     | 370 |     | 375 |     | 380 |     |     |     |     |     |     |     |     |     |     |
| Leu | Leu | Leu | Gln | Ile | Pro | Ser | Thr | Ile | Arg | Ser | Ile | His | Gln | Asp | Lys |
| 385 |     |     | 390 |     | 395 |     |     |     |     |     |     |     |     |     | 400 |
| Ile | Leu | Ala | Leu | Arg | Gln | Gln | Thr | Gln | Phe | Leu | Trp | Glu | Ala | Tyr | Phe |
|     | 405 |     | 410 |     | 415 |     |     |     |     |     |     |     |     |     |     |
| Ser | Ser | Val | Glu | Lys | Ile | Val | Leu | Thr | Thr | Leu | Glu | Ile | Ile | Gln | Asp |
|     | 420 |     | 425 |     | 430 |     |     |     |     |     |     |     |     |     |     |
| Arg | Ile | Phe | Lys | His | Ile | Ser | Arg | Asn | Ser | Leu | Ile | Trp | Asn | Lys | His |
|     | 435 |     | 440 |     | 445 |     |     |     |     |     |     |     |     |     |     |
| Pro | Gly | Gly | Leu | Phe | Val | Leu | Pro | Gln | Tyr | Ser | Ser | Tyr | Leu | Gly | Asp |
|     | 450 |     | 455 |     | 460 |     |     |     |     |     |     |     |     |     |     |
| Phe | Pro | Tyr | Tyr | Tyr | Ala | Asn | Leu | Gly | Leu | Lys | Pro | Pro | Ser | Lys | Phe |
| 465 |     |     | 470 |     | 475 |     |     |     |     |     |     |     |     |     | 480 |

Thr Ala Val Ile His Pro Val Thr Pro Leu Val Ser Gln Ser Gln Pro  
 485 490 495  
 Val Leu Lys Leu Leu Val Ala Ala Ala Lys Ser Gln Tyr Cys Ala Gln  
 500 505 510  
 Ile Ile Val Leu Trp Asn Cys Asp Lys Pro Leu Pro Ala Lys His Arg  
 515 520 525  
 Trp Pro Ala Thr Ala Val Pro Val Ile Val Ile Glu Gly Glu Ser Lys  
 530 535 540  
 Val Met Ser Arg Phe Leu Pro Tyr Asp Asn Ile Ile Thr Asp Ala Val  
 545 550 555 560  
 Leu Ser Leu Asp Glu Asp Thr Val Leu Ser Thr Thr Glu Val Asp Phe  
 565 570 575  
 Ala Phe Thr Val Trp Gln Ser Phe Pro Glu Arg Ile Val Gly Tyr Pro  
 580 585 590  
 Ala Arg Ser His Phe Trp Asp Asn Ser Lys Glu Arg Trp Gly Tyr Thr  
 595 600 605  
 Ser Lys Trp Thr Asn Asp Tyr Ser Met Val Leu Thr Gly Ala Ala Ile  
 610 615 620  
 Tyr His Lys Tyr Tyr His Tyr Leu Tyr Ser His Tyr Leu Pro Ala Ser  
 625 630 635 640  
 Leu Lys Asn Met Val Asp Gln Leu Ala Asn Cys Glu Asp Ile Leu Met  
 645 650 655  
 Asn Phe Leu Val Ser Ala Val Thr Lys Leu Pro Pro Ile Lys Val Thr  
 660 665 670  
 Gln Lys Lys Gln Tyr Lys Glu Thr Met Met Gly Gln Thr Ser Arg Ala  
 675 680 685  
 Ser Arg Trp Ala Asp Pro Asp His Phe Ala Gln Arg Gln Ser Cys Met  
 690 695 700  
 Asn Thr Phe Ala Ser Trp Phe Gly Tyr Met Pro Leu Ile His Ser Gln

705                      710                      715                      720  
 Met Arg Leu Asp Pro Val Leu Phe Lys Asp Gln Val Ser Ile Leu Arg  
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<210> 888

<211> 1933

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (140).. (1243)

<400> 888

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 ggggtcgtg gggctggcc atg gtg atg gag gtg ggc atc ctg gac gcc ggg 172  
                     Met Val Met Glu Val Gly Ile Leu Asp Ala Gly  
                     1                      5                      10  
 ggg ctg cgc gcg ctg ctg cga gag ggc gcc gcg cag tgc ctg ttg ttg 220  
 Gly Leu Arg Ala Leu Leu Arg Glu Gly Ala Ala Gln Cys Leu Leu Leu  
                     15                      20                      25  
 gat tgt cgc tcc ttc ttc gct ttc aac gcc ggc cac atc gcg ggc tca 268  
 Asp Cys Arg Ser Phe Phe Ala Phe Asn Ala Gly His Ile Ala Gly Ser  
                     30                      35                      40  
 gtg aac gtg cgc ttc agc acc atc gtg cgg cgc cgc gcc aag ggc gcc 316  
 Val Asn Val Arg Phe Ser Thr Ile Val Arg Arg Arg Ala Lys Gly Ala

|   |     |     |     |
|---|-----|-----|-----|
| 45  | 50  | 55  |     |
| atg ggc ctg gag cat atc gtg ccc aac gct gaa ctg cgt ggc cgc ctg | 364 |     |     |
| Met Gly Leu Glu His Ile Val Pro Asn Ala Glu Leu Arg Gly Arg Leu |     |     |     |
| 60  | 65  | 70  | 75  |
| ctg gcc gga gcc tac cac gcc gtg gtg ctg ctg gac gag cgc agc gcc | 412 |     |     |
| Leu Ala Gly Ala Tyr His Ala Val Val Leu Leu Asp Glu Arg Ser Ala |     |     |     |
| 80  | 85  | 90  |     |
| tcc ctg gac ggc gcc aag cgc gac ggc acc ctg gcc ctg gcc gcg ggc | 460 |     |     |
| Ser Leu Asp Gly Ala Lys Arg Asp Gly Thr Leu Ala Leu Ala Ala Gly |     |     |     |
| 95  | 100 | 105 |     |
| gcg ctc tgc cga gag gcg cgc tcc act caa gtc ttc ttt ctc caa gga | 508 |     |     |
| Ala Leu Cys Arg Glu Ala Arg Ser Thr Gln Val Phe Phe Leu Gln Gly |     |     |     |
| 110   | 115 | 120 |     |
| gga tat gaa gcg ttt tcg gct tcc tgc cct gag ctg tgc agc aaa cag | 556 |     |     |
| Gly Tyr Glu Ala Phe Ser Ala Ser Cys Pro Glu Leu Cys Ser Lys Gln |     |     |     |
| 125   | 130 | 135 |     |
| tcc acc ccc acg ggg ctc agc ctc ccc ctg agt act agt gtg cct gac | 604 |     |     |
| Ser Thr Pro Thr Gly Leu Ser Leu Pro Leu Ser Thr Ser Val Pro Asp |     |     |     |
| 140   | 145 | 150 | 155 |
| agt gca gaa tcc gga tgc agc tcc tgt agt acc cct ctc tac gat cag | 652 |     |     |
| Ser Ala Glu Ser Gly Cys Ser Ser Cys Ser Thr Pro Leu Tyr Asp Gln |     |     |     |
| 160   | 165 | 170 |     |
| ggg ggc cca gtg gag atc ctg tcc ttc ctg tac ctg ggc agt gcc tat | 700 |     |     |
| Gly Gly Pro Val Glu Ile Leu Ser Phe Leu Tyr Leu Gly Ser Ala Tyr |     |     |     |
| 175   | 180 | 185 |     |
| cac gct tct cgg aag gat atg ctt gac gcc ttg ggc atc acc gcc ttg | 748 |     |     |
| His Ala Ser Arg Lys Asp Met Leu Asp Ala Leu Gly Ile Thr Ala Leu |     |     |     |
| 190   | 195 | 200 |     |
| atc aac gtc tca gcc aat tgt cct aac cac ttt gag ggt cac tac cag | 796 |     |     |

|   |      |
|---|------|
| Ile Asn Val Ser Ala Asn Cys Pro Asn His Phe Glu Gly His Tyr Gln |      |
| 205   | 210  |
| 215   |      |
| tac aag agc atc cct gtg gag gac aac cac aag gca gac atc agc tcc | 844  |
| Tyr Lys Ser Ile Pro Val Glu Asp Asn His Lys Ala Asp Ile Ser Ser |      |
| 220   | 225  |
| 230   | 235  |
| tgg ttc aac gag gct att gac ttc ata gac tcc atc aag gat gct gga | 892  |
| Trp Phe Asn Glu Ala Ile Asp Phe Ile Asp Ser Ile Lys Asp Ala Gly |      |
| 240   | 245  |
| 250   |      |
| ggg aga gtg ttt gtt cat tgc cag gcc ggc atc tcc cgg tca gcc acc | 940  |
| Gly Arg Val Phe Val His Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr |      |
| 255   | 260  |
| 265   |      |
| atc tgc ctt gct tac ctc atg agg act aac cgg gta aag ctg gac gag | 988  |
| Ile Cys Leu Ala Tyr Leu Met Arg Thr Asn Arg Val Lys Leu Asp Glu |      |
| 270   | 275  |
| 280   |      |
| gcc ttt gag ttt gtg aag cag agg cgg agt atc atc tcc ccg aac ttc | 1036 |
| Ala Phe Glu Phe Val Lys Gln Arg Arg Ser Ile Ile Ser Pro Asn Phe |      |
| 285   | 290  |
| 295   |      |
| agc ttc atg ggc cag ctg ctg cag ttt gag tcc caa gtg cta gcc cct | 1084 |
| Ser Phe Met Gly Gln Leu Leu Gln Phe Glu Ser Gln Val Leu Ala Pro |      |
| 300   | 305  |
| 310   | 315  |
| cac tgc tct gct gaa gct ggg agc cct gcc atg gct gtc ctt gac cgg | 1132 |
| His Cys Ser Ala Glu Ala Gly Ser Pro Ala Met Ala Val Leu Asp Arg |      |
| 320   | 325  |
| 330   |      |
| ggc acc tct act acc aca gtc ttc aac ttc cct gtt tcc atc ccc gtc | 1180 |
| Gly Thr Ser Thr Thr Thr Val Phe Asn Phe Pro Val Ser Ile Pro Val |      |
| 335   | 340  |
| 345   |      |
| cac ccc acg aac agt gcc ctg aac tac ctt aaa agc ccc atc acc acc | 1228 |
| His Pro Thr Asn Ser Ala Leu Asn Tyr Leu Lys Ser Pro Ile Thr Thr |      |
| 350   | 355  |
| 360   |      |

tct cca agc tgc tga agggcaaggg gaggtgtgga gtttcacttg ccaccgggtc 1283  
Ser Pro Ser Cys

365

gccactcctc ctgtgggagg agcaatgcaa taactctggg agaggctcat gggagctggt 1343  
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agcagtcaca acaatgacit gaccgcaaga catttgctga actcggcaca ttcgggacca 1463  
atatattgtg ggtacatcaa gtccctctga caaaacaggg cagaagagaa aggactctgt 1523  
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atgtttgttt atttatgac tgaagtaata ttttcttct tctgtgaaga cattttgtta 1883  
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<210> 889

<211> 367

<212> PRT

<213> Mus musculus

<400> 889

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Met | Glu | Val | Gly | Ile | Leu | Asp | Ala | Gly | Gly | Leu | Arg | Ala | Leu |
| 1   |     |     |     | 5   |     |     |     |     |     | 10  |     |     |     | 15  |     |
| Leu | Arg | Glu | Gly | Ala | Ala | Gln | Cys | Leu | Leu | Leu | Asp | Cys | Arg | Ser | Phe |
|     |     |     | 20  |     |     |     |     |     |     | 25  |     |     |     | 30  |     |
| Phe | Ala | Phe | Asn | Ala | Gly | His | Ile | Ala | Gly | Ser | Val | Asn | Val | Arg | Phe |
|     |     | 35  |     |     |     |     |     | 40  |     |     |     |     |     | 45  |     |
| Ser | Thr | Ile | Val | Arg | Arg | Arg | Ala | Lys | Gly | Ala | Met | Gly | Leu | Glu | His |
|     |     | 50  |     |     |     |     |     | 55  |     |     |     |     |     | 60  |     |



2197/2644

|   |     |     |     |
|---|-----|-----|-----|
| 290   | 295 | 300 |     |
| Leu Leu Gln Phe Glu Ser Gln Val Leu Ala Pro His Cys Ser Ala Glu |     |     |     |
| 305   | 310 | 315 | 320 |
| Ala Gly Ser Pro Ala Met Ala Val Leu Asp Arg Gly Thr Ser Thr Thr |     |     |     |
|   | 325 | 330 | 335 |
| Thr Val Phe Asn Phe Pro Val Ser Ile Pro Val His Pro Thr Asn Ser |     |     |     |
|   | 340 | 345 | 350 |
| Ala Leu Asn Tyr Leu Lys Ser Pro Ile Thr Thr Ser Pro Ser Cys     |     |     |     |
|   | 355 | 360 | 365 |

&lt;210&gt; 890

&lt;211&gt; 2089

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 890

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<210> 891

<211> 2728

<212> DNA

<213> Mus musculus

<220>

&lt;221&gt; CDS

&lt;222&gt; (49).. (1179)

&lt;220&gt;

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&lt;222&gt; (208).. (846)

&lt;400&gt; 891

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Ala Ser Val Leu Leu Leu Ala Gly Leu Cys Ser Leu Ser Gln Gly Gln

5

10

15

tat gat gaa gac tct cac tgg tgg atc caa tac ctc cga aac cag cag 153

Tyr Asp Glu Asp Ser His Trp Trp Ile Gln Tyr Leu Arg Asn Gln Gln

20

25

30

35

tcc acc tac tac gac ccc tat gac cct tac ccc tat gag ccc tct gag 201

Ser Thr Tyr Tyr Asp Pro Tyr Asp Pro Tyr Pro Tyr Glu Pro Ser Glu

40

45

50

cct tac ccc tat gga gtg gaa gaa ggc cca gcc tat gcc tat ggt gca 249

Pro Tyr Pro Tyr Gly Val Glu Glu Gly Pro Ala Tyr Ala Tyr Gly Ala

55

60

65

cca cct cca cca gag ccc cgt gat tgt ccc caa gaa tgc gac tgt ccc 297

Pro Pro Pro Pro Glu Pro Arg Asp Cys Pro Gln Glu Cys Asp Cys Pro

70

75

80

ccc aac ttc ccc aca gcc atg tac tgt gac aac cgc aac ctc aag tac 345

Pro Asn Phe Pro Thr Ala Met Tyr Cys Asp Asn Arg Asn Leu Lys Tyr

85

90

95

ctg cct ttt gtg ccc tcc cgc atg aag tac gtc tac ttc cag aac aac 393  
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 100 105 110 115  
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 Gln Ile Ser Ala Ile Gln Glu Gly Val Phe Asp Asn Ala Thr Gly Leu  
 120 125 130  
 ctc tgg gtc gct cta cat ggc aac cag att acc agt gac aag gta ggc 489  
 Leu Trp Val Ala Leu His Gly Asn Gln Ile Thr Ser Asp Lys Val Gly  
 135 140 145  
 agg aaa gtc ttc tcc aag ctg agg cac ctg gag agg ctg tac ttg gac 537  
 Arg Lys Val Phe Ser Lys Leu Arg His Leu Glu Arg Leu Tyr Leu Asp  
 150 155 160  
 cac aac aac ctg acc cgg atg ccc ggc cgg ctg ccc cga tcc ctg aga 585  
 His Asn Asn Leu Thr Arg Met Pro Gly Pro Leu Pro Arg Ser Leu Arg  
 165 170 175  
 gag ctc cac ctg gac cac aac cag atc tca cgg gtc ccc aac aat gct 633  
 Glu Leu His Leu Asp His Asn Gln Ile Ser Arg Val Pro Asn Asn Ala  
 180 185 190 195  
 ttg gag ggc ctg gag aac ctc acg gcc tta tat ctc cac cac aat gag 681  
 Leu Glu Gly Leu Glu Asn Leu Thr Ala Leu Tyr Leu His His Asn Glu  
 200 205 210  
 atc cag gaa gtg ggg agt tcc atg aga ggc ctc cgg tcc ctg atc cta 729  
 Ile Gln Glu Val Gly Ser Ser Met Arg Gly Leu Arg Ser Leu Ile Leu  
 215 220 225  
 cta gac ctg agt tat aac cac ctt cgg agg gta ccc gac ggt ctg ccc 777  
 Leu Asp Leu Ser Tyr Asn His Leu Arg Arg Val Pro Asp Gly Leu Pro  
 230 235 240  
 tca gcc ctg gag cag ctg tac cta gaa cac aac aat gtc tac acc gtc 825  
 Ser Ala Leu Glu Gln Leu Tyr Leu Glu His Asn Asn Val Tyr Thr Val

|  |     |     |      |
|--|-----|-----|------|
| 245  | 250 | 255 |      |
| cct gac agc tac ttc cgg ggg tca ccc aag ctg ctg tac gtc cgg ttg    |     |     | 873  |
| Pro Asp Ser Tyr Phe Arg Gly Ser Pro Lys Leu Leu Tyr Val Arg Leu    |     |     |      |
| 260  | 265 | 270 | 275  |
| tct cac aac agt ctc act aac aac ggc ctt gct acc aac acc ttc aac    |     |     | 921  |
| Ser His Asn Ser Leu Thr Asn Asn Gly Leu Ala Thr Asn Thr Phe Asn    |     |     |      |
|  | 280 | 285 | 290  |
| tcc agc agc ctt ctt gag cta gac ttg tct tac aat cag ctg cag aag    |     |     | 969  |
| Ser Ser Ser Leu Leu Glu Leu Asp Leu Ser Tyr Asn Gln Leu Gln Lys    |     |     |      |
|  | 295 | 300 | 305  |
| atc cct cct gtc aac acc aac ctg gag aat ctt tac ctc cag ggc aac    |     |     | 1017 |
| Ile Pro Pro Val Asn Thr Asn Leu Glu Asn Leu Tyr Leu Gln Gly Asn    |     |     |      |
|  | 310 | 315 | 320  |
| agg atc aat gag ttc tcc atc agc agc ttc tgc acg gtg gtg gac gtc    |     |     | 1065 |
| Arg Ile Asn Glu Phe Ser Ile Ser Ser Phe Cys Thr Val Val Asp Val    |     |     |      |
|  | 325 | 330 | 335  |
| atg aac ttc tcc aag ctg cag gtg cta cgc ctg gat ggg aac gag atc    |     |     | 1113 |
| Met Asn Phe Ser Lys Leu Gln Val Leu Arg Leu Asp Gly Asn Glu Ile    |     |     |      |
| 340  | 345 | 350 | 355  |
| aag cgc agc gca atg ccg gtg gac gcc cca ctc tgc ctg cgc ctc gcc    |     |     | 1161 |
| Lys Arg Ser Ala Met Pro Val Asp Ala Pro Leu Cys Leu Arg Leu Ala    |     |     |      |
|  | 360 | 365 | 370  |
| aac ctc atc gag atc tga tcaccaagc tgctgtacgt ccggttgtct            |     |     | 1209 |
| Asn Leu Ile Glu Ile  |     |     |      |
|  | 375 |     |      |
| cacaacagtc tcactaacia cggccttgct accaacacct tcaactccag cagccitctt  |     |     | 1269 |
| gagctagact tgtcttacia tcagctgcag aagatccctc ctgtcaacac caacctggag  |     |     | 1329 |
| aatctttacc tccagggcaa caggatcaat gaggttctcca tcagcagctt ctgcacggtg |     |     | 1389 |
| gtggacgtca tgaacttctc caagctgcag gtgctacgcc tggatgggaa cgagatcaag  |     |     | 1449 |

cgcagc gcaa tgccgg tggga cgcccc actc tgcc tgcgcc tgc ccaacct catcgagatc 1509  
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 gctcgg ggta catgcc ctgc cacc ccgtg catgtttggc ttttgctgga tggctcggga 1629  
 cagcatgtg acagaagtcc acaggatctt attcaatctc cticcaacag gcagagittag 1689  
 gtggga tcag gggccaggcc agtttctgca gggggatgaa ttgggtggta aaagaaatat 1749  
 agctatagag tctagcccca aaatcttctt gcttggacag tagcatataa ccagttccaa 1809  
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 tgcccagtgg tgcc tigtat ttgtagttg tctaagaaca gcccac tct ctccttttta 2649  
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 ggggtgctta gactgtgcta cgggttccag aactgcaatc cacaaaagcc aaaccagctt 2889  
 gtttcaaccg gggagtcca cctgcggagc aaggctgccc tggccagggt tcttgggaag 2949  
 cacctgcatg tatcaccatc ctgctctga agagccctca gcatgaagca agcatgaatg 3009  
 gcggccaacc taaccaataa agttaattta taagtgc aaa aaaaaaaa aa 3061

&lt;211&gt; 376

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 892

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 Gln Gly Gln Tyr Asp Glu Asp Ser His Trp Trp Ile Gln Tyr Leu Arg  
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 Asn Gln Gln Ser Thr Tyr Tyr Asp Pro Tyr Asp Pro Tyr Pro Tyr Glu  
 35 40 45  
 Pro Ser Glu Pro Tyr Pro Tyr Gly Val Glu Glu Gly Pro Ala Tyr Ala  
 50 55 60  
 Tyr Gly Ala Pro Pro Pro Pro Glu Pro Arg Asp Cys Pro Gln Glu Cys  
 65 70 75 80  
 Asp Cys Pro Pro Asn Phe Pro Thr Ala Met Tyr Cys Asp Asn Arg Asn  
 85 90 95  
 Leu Lys Tyr Leu Pro Phe Val Pro Ser Arg Met Lys Tyr Val Tyr Phe  
 100 105 110  
 Gln Asn Asn Gln Ile Ser Ala Ile Gln Glu Gly Val Phe Asp Asn Ala  
 115 120 125  
 Thr Gly Leu Leu Trp Val Ala Leu His Gly Asn Gln Ile Thr Ser Asp  
 130 135 140  
 Lys Val Gly Arg Lys Val Phe Ser Lys Leu Arg His Leu Glu Arg Leu  
 145 150 155 160  
 Tyr Leu Asp His Asn Asn Leu Thr Arg Met Pro Gly Pro Leu Pro Arg  
 165 170 175  
 Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg Val Pro  
 180 185 190



Asn Asn Ala Leu Glu Gly Leu Glu Asn Leu Thr Ala Leu Tyr Leu His  
 195 200 205  
 His Asn Glu Ile Gln Glu Val Gly Ser Ser Met Arg Gly Leu Arg Ser  
 210 215 220  
 Leu Ile Leu Leu Asp Leu Ser Tyr Asn His Leu Arg Arg Val Pro Asp  
 225 230 235 240  
 Gly Leu Pro Ser Ala Leu Glu Gln Leu Tyr Leu Glu His Asn Asn Val  
 245 250 255  
 Tyr Thr Val Pro Asp Ser Tyr Phe Arg Gly Ser Pro Lys Leu Leu Tyr  
 260 265 270  
 Val Arg Leu Ser His Asn Ser Leu Thr Asn Asn Gly Leu Ala Thr Asn  
 275 280 285  
 Thr Phe Asn Ser Ser Ser Leu Leu Glu Leu Asp Leu Ser Tyr Asn Gln  
 290 295 300  
 Leu Gln Lys Ile Pro Pro Val Asn Thr Asn Leu Glu Asn Leu Tyr Leu  
 305 310 315 320  
 Gln Gly Asn Arg Ile Asn Glu Phe Ser Ile Ser Ser Phe Cys Thr Val  
 325 330 335  
 Val Asp Val Met Asn Phe Ser Lys Leu Gln Val Leu Arg Leu Asp Gly  
 340 345 350  
 Asn Glu Ile Lys Arg Ser Ala Met Pro Val Asp Ala Pro Leu Cys Leu  
 355 360 365  
 Arg Leu Ala Asn Leu Ile Glu Ile  
 370 375

&lt;210&gt; 893

&lt;211&gt; 2821

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (21).. (1310)

&lt;400&gt; 893

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              1              5              10
aag att cat aat cgc tat gaa ggc aaa gat gtt tca aaa cat aag cgg 101
Lys Ile His Asn Arg Tyr Glu Gly Lys Asp Val Ser Lys His Lys Arg
              15              20              25
aat ctg gcc ata gca ggc ggt gtc acc ctg tct gta atc gtg tct ccg 149
Asn Leu Ala Ile Ala Gly Gly Val Thr Leu Ser Val Ile Val Ser Pro
              30              35              40
gtg gta gct gca gtg act gta ggc att ggt gtt ccc atc atg cta gct 197
Val Val Ala Ala Val Thr Val Gly Ile Gly Val Pro Ile Met Leu Ala
              45              50              55
tat gtc tat ggt gtg gtc cca att tct ctc tgc cga agt ggg ggt tgt 245
Tyr Val Tyr Gly Val Val Pro Ile Ser Leu Cys Arg Ser Gly Gly Cys
              60              65              70              75
ggg gtc tct gcg ggc aat ggg aaa gga gtg agg att gag ttt gat gat 293
Gly Val Ser Ala Gly Asn Gly Lys Gly Val Arg Ile Glu Phe Asp Asp
              80              85              90
gag aat gac ata aac gtc ggt ggg act aac gca gcc ata gat aca aca 341
Glu Asn Asp Ile Asn Val Gly Gly Thr Asn Ala Ala Ile Asp Thr Thr
              95              100              105
tca gta gca gaa gca agg cac aac cct agc ata gga gag gga agt gtc 389
Ser Val Ala Glu Ala Arg His Asn Pro Ser Ile Gly Glu Gly Ser Val

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|   |     |     |     |
|---|-----|-----|-----|
| 110   | 115 | 120 |     |
| ggc ggc ctg act ggc agt ttg agt gca agt gga agc cac atg gat cga | 437 |     |     |
| Gly Gly Leu Thr Gly Ser Leu Ser Ala Ser Gly Ser His Met Asp Arg |     |     |     |
| 125   | 130 | 135 |     |
| ata ggc acc att aga gac aac ctg agt gag aca gcg agc acc atg gca | 485 |     |     |
| Ile Gly Thr Ile Arg Asp Asn Leu Ser Glu Thr Ala Ser Thr Met Ala |     |     |     |
| 140   | 145 | 150 | 155 |
| tta gct gga gct agt atc acg ggc agt ctg tcg gga agt gcc atg gta | 533 |     |     |
| Leu Ala Gly Ala Ser Ile Thr Gly Ser Leu Ser Gly Ser Ala Met Val |     |     |     |
| 160   | 165 | 170 |     |
| aac tgt ttc aac agg ttg gaa gta caa gca gac gta cag aaa gaa cgg | 581 |     |     |
| Asn Cys Phe Asn Arg Leu Glu Val Gln Ala Asp Val Gln Lys Glu Arg |     |     |     |
| 175   | 180 | 185 |     |
| tgt agt ctc agt gga gag tct ggc aca gtg agc ttg gga aca gtt agt | 629 |     |     |
| Cys Ser Leu Ser Gly Glu Ser Gly Thr Val Ser Leu Gly Thr Val Ser |     |     |     |
| 190   | 195 | 200 |     |
| gat aac gcc agc acc aaa gca atg gcg gga tcc att ctc aac tcc tac | 677 |     |     |
| Asp Asn Ala Ser Thr Lys Ala Met Ala Gly Ser Ile Leu Asn Ser Tyr |     |     |     |
| 205   | 210 | 215 |     |
| atc cct ctg gac aga gaa ggg aac agc atg gaa gtg caa gtg gat att | 725 |     |     |
| Ile Pro Leu Asp Arg Glu Gly Asn Ser Met Glu Val Gln Val Asp Ile |     |     |     |
| 220   | 225 | 230 | 235 |
| gag tca aag cca ttc aag ttc cga cac aac agt gga agc agc agt gtg | 773 |     |     |
| Glu Ser Lys Pro Phe Lys Phe Arg His Asn Ser Gly Ser Ser Ser Val |     |     |     |
| 240   | 245 | 250 |     |
| gat gac agt ggt gct acc cga ggc cac aca ggc ggg gcg tcc agt ggc | 821 |     |     |
| Asp Asp Ser Gly Ala Thr Arg Gly His Thr Gly Gly Ala Ser Ser Gly |     |     |     |
| 255   | 260 | 265 |     |
| ttg ccc gaa ggt aaa tcc agt gct acc aag tgg tcc aag gaa gca aca | 869 |     |     |

Leu Pro Glu Gly Lys Ser Ser Ala Thr Lys Trp Ser Lys Glu Ala Thr  
 270 275 280  
 gga gga aaa aag tca aaa agt ggt aaa ctg agg aaa aag ggt aac atg 917  
 Gly Gly Lys Lys Ser Lys Ser Gly Lys Leu Arg Lys Lys Gly Asn Met  
 285 290 295  
 aag atc aat gag acc aga gag gac atg gat gca cag ttg tta gag caa 965  
 Lys Ile Asn Glu Thr Arg Glu Asp Met Asp Ala Gln Leu Leu Glu Gln  
 300 305 310 315  
 caa agc acg aac tca agt gag ttt gag gcg cca tcc ctc agt gac agc 1013  
 Gln Ser Thr Asn Ser Ser Glu Phe Glu Ala Pro Ser Leu Ser Asp Ser  
 320 325 330  
 atg ccg tct gta gca gat tcc cac tcc agt cat ttt tct gaa ttt agc 1061  
 Met Pro Ser Val Ala Asp Ser His Ser Ser His Phe Ser Glu Phe Ser  
 335 340 345  
 tgc tca gac tta gaa agc atg aga acg tcc tgt agt cac ggc tcc agt 1109  
 Cys Ser Asp Leu Glu Ser Met Arg Thr Ser Cys Ser His Gly Ser Ser  
 350 355 360  
 gat tgc cac gcc cgc ttc aca gct gtg aac acc ctt cct gag gta gaa 1157  
 Asp Cys His Ala Arg Phe Thr Ala Val Asn Thr Leu Pro Glu Val Glu  
 365 370 375  
 aac gac cga ctg gag aac tca cca cac cag tgc agc agc tct gct ttc 1205  
 Asn Asp Arg Leu Glu Asn Ser Pro His Gln Cys Ser Ser Ser Ala Phe  
 380 385 390 395  
 caa agc tgc ttc ctg ttc aga tgt ccc aca gcc cag cca tgc tgc aga 1253  
 Gln Ser Cys Phe Leu Phe Arg Cys Pro Thr Ala Gln Pro Cys Cys Arg  
 400 405 410  
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 Arg Ala Trp His Gln Gln Lys Trp Gly Glu Ala Tyr Gly Gly Phe Val  
 415 420 425

ttt tgg tga tgcactgaga gagacaaata ataaccactc gcaccagaca 1350

Phe Trp

430

gcagacctga aagttgctgt ccagactgaa atttaggccc gtgaatgctg cagagtaaga 1410  
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 gcagacatga aataaatgta aataactaatg g 2821

&lt;210&gt; 894

&lt;211&gt; 429

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 894

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 20 25 30  
 Gly Gly Val Thr Leu Ser Val Ile Val Ser Pro Val Val Ala Ala Val  
 35 40 45  
 Thr Val Gly Ile Gly Val Pro Ile Met Leu Ala Tyr Val Tyr Gly Val  
 50 55 60  
 Val Pro Ile Ser Leu Cys Arg Ser Gly Gly Cys Gly Val Ser Ala Gly  
 65 70 75 80  
 Asn Gly Lys Gly Val Arg Ile Glu Phe Asp Asp Glu Asn Asp Ile Asn  
 85 90 95  
 Val Gly Gly Thr Asn Ala Ala Ile Asp Thr Thr Ser Val Ala Glu Ala  
 100 105 110  
 Arg His Asn Pro Ser Ile Gly Glu Gly Ser Val Gly Gly Leu Thr Gly  
 115 120 125  
 Ser Leu Ser Ala Ser Gly Ser His Met Asp Arg Ile Gly Thr Ile Arg  
 130 135 140  
 Asp Asn Leu Ser Glu Thr Ala Ser Thr Met Ala Leu Ala Gly Ala Ser  
 145 150 155 160  
 Ile Thr Gly Ser Leu Ser Gly Ser Ala Met Val Asn Cys Phe Asn Arg  
 165 170 175  
 Leu Glu Val Gln Ala Asp Val Gln Lys Glu Arg Cys Ser Leu Ser Gly

|   |     |     |
|---|-----|-----|
| 180   | 185 | 190 |
| Glu Ser Gly Thr Val Ser Leu Gly Thr Val Ser Asp Asn Ala Ser Thr |     |     |
| 195   | 200 | 205 |
| Lys Ala Met Ala Gly Ser Ile Leu Asn Ser Tyr Ile Pro Leu Asp Arg |     |     |
| 210   | 215 | 220 |
| Glu Gly Asn Ser Met Glu Val Gln Val Asp Ile Glu Ser Lys Pro Phe |     |     |
| 225   | 230 | 235 |
| Lys Phe Arg His Asn Ser Gly Ser Ser Ser Val Asp Asp Ser Gly Ala |     |     |
| 245   | 250 | 255 |
| Thr Arg Gly His Thr Gly Gly Ala Ser Ser Gly Leu Pro Glu Gly Lys |     |     |
| 260   | 265 | 270 |
| Ser Ser Ala Thr Lys Trp Ser Lys Glu Ala Thr Gly Gly Lys Lys Ser |     |     |
| 275   | 280 | 285 |
| Lys Ser Gly Lys Leu Arg Lys Lys Gly Asn Met Lys Ile Asn Glu Thr |     |     |
| 290   | 295 | 300 |
| Arg Glu Asp Met Asp Ala Gln Leu Leu Glu Gln Gln Ser Thr Asn Ser |     |     |
| 305   | 310 | 315 |
| Ser Glu Phe Glu Ala Pro Ser Leu Ser Asp Ser Met Pro Ser Val Ala |     |     |
| 325   | 330 | 335 |
| Asp Ser His Ser Ser His Phe Ser Glu Phe Ser Cys Ser Asp Leu Glu |     |     |
| 340   | 345 | 350 |
| Ser Met Arg Thr Ser Cys Ser His Gly Ser Ser Asp Cys His Ala Arg |     |     |
| 355   | 360 | 365 |
| Phe Thr Ala Val Asn Thr Leu Pro Glu Val Glu Asn Asp Arg Leu Glu |     |     |
| 370   | 375 | 380 |
| Asn Ser Pro His Gln Cys Ser Ser Ser Ala Phe Gln Ser Cys Phe Leu |     |     |
| 385   | 390 | 395 |
| Phe Arg Cys Pro Thr Ala Gln Pro Cys Cys Arg Arg Ala Trp His Gln |     |     |
| 405   | 410 | 415 |

Gln Lys Trp Gly Glu Ala Tyr Gly Gly Phe Val Phe Trp

420

425

<210> 895

<211> 2119

<212> DNA

<213> Mus musculus

<400> 895

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ggaagaacag tgattaitga acagagttgg ggaagtccca aagtaacaaa agatggggtc 180
actgttgcaa agtcaattga tttaaaggat aaatacaaaa atatcggagc taagcttggt 240
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ctggcacggg ctattgccaa ggagggtttt gagaagatca gcaaaggggc taatccagtg 360
gaaatccgga gaggtgtgat gtggctgtg gatgctgtaa ttgctgaact taagaaacag 420
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 tgagtcatca ggactgtagc gctgtgtcaa caaaacatag agagttcaga agacagcctt 2040  
 tctgtggaag ggtgggaatg attgtgtaca aagtagagaa gtatccaatt atgtgacaac 2100  
 ctttgtgtaa taaaatttt 2119

<210> 896

<211> 349

<212> DNA

<213> Mus musculus

<400> 896

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 gtctcattaa gaaccagca gacacgcaga tctgaagctg ctgatgaacc acgccttcat 120  
 caagcgctct gacggggagg aagtggactt cgccggctgc tgtgcagaac cctgcggtg 180  
 aagcagccca gcacaccac gcggactgca gtgtgacagc agcgccacag tctgtgtcct 240  
 tgtccctgtc ggcacagtgg ccgctgcctc tggggacagt gatgctgttt gttgtggcag 300  
 gggacctatg cccatgcatt tgaaaaccaa acaaatgaa gaaagagaa 349

&lt;210&gt; 897

&lt;211&gt; 1284

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (181).. (957)

&lt;400&gt; 897

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ggaaaccccg cccgctataa ataacaggga ggagtttacc tcatttgta gactgggtgt 60
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ttccggccag ctgttaacac ctgtgtttcc ttttttcaga tcctacaggt gaacaagggtg 180
atg tcc atc ttg ttt tat gtg ata ttt ctt gct tat ctc cgt ggc atc 228
Met Ser Ile Leu Phe Tyr Val Ile Phe Leu Ala Tyr Leu Arg Gly Ile
      1              5              10              15
caa ggc aac agc atg gat caa agg agt ttg ccg gaa gac tct ctc aat 276
Gln Gly Asn Ser Met Asp Gln Arg Ser Leu Pro Glu Asp Ser Leu Asn
      20              25              30
tcc ctc atc atc aag ctg atc cag gcg gat atc ttg aaa aac aag ctt 324
Ser Leu Ile Ile Lys Leu Ile Gln Ala Asp Ile Leu Lys Asn Lys Leu
      35              40              45
tcc aaa cag atg gtg gat gtt aag gaa aat tac cag agc acc ctg ccc 372
Ser Lys Gln Met Val Asp Val Lys Glu Asn Tyr Gln Ser Thr Leu Pro
      50              55              60
aaa gca gag gca ccc agg gaa cca gag cag gga gag gcc acc agg tca 420
Lys Ala Glu Ala Pro Arg Glu Pro Glu Gln Gly Glu Ala Thr Arg Ser
      65              70              75              80

```

gag ttc cag cca atg att gca acg gac aca gag cta cta cgg caa cag 468  
 Glu Phe Gln Pro Met Ile Ala Thr Asp Thr Glu Leu Leu Arg Gln Gln  
                     85                    90                    95  
 aga cgc tac aat tcg ccc cgg gtc ctg ctg agt gac agc acc cct ttg 516  
 Arg Arg Tyr Asn Ser Pro Arg Val Leu Leu Ser Asp Ser Thr Pro Leu  
                     100                    105                    110  
 gag ccc cct ccc tta tac cta atg gag gat tat gtg ggc aac ccg gtg 564  
 Glu Pro Pro Pro Leu Tyr Leu Met Glu Asp Tyr Val Gly Asn Pro Val  
                     115                    120                    125  
 gta gcc aat aga acc tca cca cgg agg aaa cgc tat gca gaa cat aag 612  
 Val Ala Asn Arg Thr Ser Pro Arg Arg Lys Arg Tyr Ala Glu His Lys  
                     130                    135                    140  
 agt cac cga gga gag tac tca gtg tgt gac agt gag agc ctg tgg gtg 660  
 Ser His Arg Gly Glu Tyr Ser Val Cys Asp Ser Glu Ser Leu Trp Val  
                     145                    150                    155                    160  
 acc gac aag tcc tca gcc att gac att cgg gga cac cag gtc aca gtg 708  
 Thr Asp Lys Ser Ser Ala Ile Asp Ile Arg Gly His Gln Val Thr Val  
                     165                    170                    175  
 ctg ggg gag atc aaa acc ggt aac tct cct gtg aaa caa tat ttt tat 756  
 Leu Gly Glu Ile Lys Thr Gly Asn Ser Pro Val Lys Gln Tyr Phe Tyr  
                     180                    185                    190  
 gaa acg aga tgt aaa gaa gcc agg ccg gtc aaa aac ggt tgc agg ggg 804  
 Glu Thr Arg Cys Lys Glu Ala Arg Pro Val Lys Asn Gly Cys Arg Gly  
                     195                    200                    205  
 att gat gac aaa cac tgg aac tct cag tgc aaa act tcg caa acc tat 852  
 Ile Asp Asp Lys His Trp Asn Ser Gln Cys Lys Thr Ser Gln Thr Tyr  
                     210                    215                    220  
 gtc cga gca ctg act tca gaa aac aac aaa ctc gta ggc tgg cgc tgg 900  
 Val Arg Ala Leu Thr Ser Glu Asn Asn Lys Leu Val Gly Trp Arg Trp

225                      230                      235                      240  
 ata cga ata gac act tcc tgt gtg tgt gcc ttg tgc aga aaa att gga 948  
 Ile Arg Ile Asp Thr Ser Cys Val Cys Ala Leu Ser Arg Lys Ile Gly  
                     245                      250                      255  
 aga aca tga attggcatct gtccccacat ataaattatt acttttaaatt 997  
 Arg Thr  
 atatgatatg catgtagcat ataaatgitt atattgtttt tatatattat aagttgacct 1057  
 ttatttatta aacttcagca acccttacag tatataagct tttttctcaa taaaattcgt 1117  
 gtgcttgccct cccctcaggc ctttcccatc tgtaaacctt gttttgtgat tgggcctcgc 1177  
 ggaacccttc tgtaaaacct gtgtacacca gtatttggca ttcagtattg tcaaggccat 1237  
 gactgtgggtt tcagtaaaact ttcttaaaat cggatgagtc agagttg 1284

<210> 898

<211> 258

<212> PRT

<213> Mus musculus

<400> 898

Met Ser Ile Leu Phe Tyr Val Ile Phe Leu Ala Tyr Leu Arg Gly Ile  
     1                    5                    10                    15  
 Gln Gly Asn Ser Met Asp Gln Arg Ser Leu Pro Glu Asp Ser Leu Asn  
             20                    25                    30  
 Ser Leu Ile Ile Lys Leu Ile Gln Ala Asp Ile Leu Lys Asn Lys Leu  
             35                    40                    45  
 Ser Lys Gln Met Val Asp Val Lys Glu Asn Tyr Gln Ser Thr Leu Pro  
             50                    55                    60  
 Lys Ala Glu Ala Pro Arg Glu Pro Glu Gln Gly Glu Ala Thr Arg Ser  
     65                    70                    75                    80  
 Glu Phe Gln Pro Met Ile Ala Thr Asp Thr Glu Leu Leu Arg Gln Gln

|   |     |     |     |
|---|-----|-----|-----|
|   | 85  | 90  | 95  |
| Arg Arg Tyr Asn Ser Pro Arg Val Leu Leu Ser Asp Ser Thr Pro Leu |     |     |     |
| 100   | 105 | 110 |     |
| Glu Pro Pro Pro Leu Tyr Leu Met Glu Asp Tyr Val Gly Asn Pro Val |     |     |     |
| 115   | 120 | 125 |     |
| Val Ala Asn Arg Thr Ser Pro Arg Arg Lys Arg Tyr Ala Glu His Lys |     |     |     |
| 130   | 135 | 140 |     |
| Ser His Arg Gly Glu Tyr Ser Val Cys Asp Ser Glu Ser Leu Trp Val |     |     |     |
| 145   | 150 | 155 | 160 |
| Thr Asp Lys Ser Ser Ala Ile Asp Ile Arg Gly His Gln Val Thr Val |     |     |     |
| 165   | 170 | 175 |     |
| Leu Gly Glu Ile Lys Thr Gly Asn Ser Pro Val Lys Gln Tyr Phe Tyr |     |     |     |
| 180   | 185 | 190 |     |
| Glu Thr Arg Cys Lys Glu Ala Arg Pro Val Lys Asn Gly Cys Arg Gly |     |     |     |
| 195   | 200 | 205 |     |
| Ile Asp Asp Lys His Trp Asn Ser Gln Cys Lys Thr Ser Gln Thr Tyr |     |     |     |
| 210   | 215 | 220 |     |
| Val Arg Ala Leu Thr Ser Glu Asn Asn Lys Leu Val Gly Trp Arg Trp |     |     |     |
| 225   | 230 | 235 | 240 |
| Ile Arg Ile Asp Thr Ser Cys Val Cys Ala Leu Ser Arg Lys Ile Gly |     |     |     |
| 245   | 250 | 255 |     |

Arg Thr

&lt;210&gt; 899

&lt;211&gt; 2325

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (286).. (2160)

&lt;400&gt; 899

gaattcactg ccttggagga ctttgtccag cacaagattc agaagacctg ccatcgggcc 60  
 ccgcaggagg ccctgcccac cacccttgct gccactgcac tgctggacca ggaggtagtg 120  
 cccacagcag cagaggaggagg tccagatgaa cccatcactg tggctcacat cgtggtaggag 180  
 gccacctctc tagcagaaga catcagccac gctcctgacc ttgctggaag tgggcacatc 240  
 aaagaggtcg ttgtggctgc tgaggcagag ccaggggatg gcgag atg gca gag gct 297

Met Ala Glu Ala

1

cca ggc agt cct aat cat cag gaa ctt ggg ctt ctt ggg gag ggc gag 345  
 Pro Gly Ser Pro Asn His Gln Glu Leu Gly Leu Leu Gly Glu Gly Glu  
 5 10 15 20  
 cag gcc cat gtc aag ctg ctg gtg aac aag gaa ggc cgc tac gtg tgc 393  
 Gln Ala His Val Lys Leu Leu Val Asn Lys Glu Gly Arg Tyr Val Cys  
 25 30 35  
 atg cta tgt cac aag acc ttc aaa acg ggc agc atc ctc aag gcc cac 441  
 Met Leu Cys His Lys Thr Phe Lys Thr Gly Ser Ile Leu Lys Ala His  
 40 45 50  
 atg gta acg cac agc agc cgc aag gac cac gag tgc aag ctc tgt ggg 489  
 Met Val Thr His Ser Ser Arg Lys Asp His Glu Cys Lys Leu Cys Gly  
 55 60 65  
 gcc tct ttt cgg acc aag ggc tct ctc atc cgg cac cac cga cgg cac 537  
 Ala Ser Phe Arg Thr Lys Gly Ser Leu Ile Arg His His Arg Arg His  
 70 75 80  
 act gat gag cgc ccc tac aaa tgt gcc aag tgt gga aag agt ttc cga 585  
 Thr Asp Glu Arg Pro Tyr Lys Cys Ala Lys Cys Gly Lys Ser Phe Arg  
 85 90 95 100

gag tca ggc gca ctg act cgg cac ctc aaa tct ctc act cca tgc aca 633  
 Glu Ser Gly Ala Leu Thr Arg His Leu Lys Ser Leu Thr Pro Cys Thr  
                   105                  110                  115  
 gaa aag atc cgc ttc agc ata agc aag gac aca gct gtg ggc aaa gag 681  
 Glu Lys Ile Arg Phe Ser Ile Ser Lys Asp Thr Ala Val Gly Lys Glu  
                   120                  125                  130  
 gaa gtg cct gca ggg tcc agt gcc tcc act gtg ggg acg gtg aca tca 729  
 Glu Val Pro Ala Gly Ser Ser Ala Ser Thr Val Gly Thr Val Thr Ser  
                   135                  140                  145  
 tca gtg gca gga gac ccc atg gag aca tca cct gtg att cac ctg gtg 777  
 Ser Val Ala Gly Asp Pro Met Glu Thr Ser Pro Val Ile His Leu Val  
                   150                  155                  160  
 aca gat gcc aag ggt act gtc atc cat gaa gtc cac gtc cag atg cag 825  
 Thr Asp Ala Lys Gly Thr Val Ile His Glu Val His Val Gln Met Gln  
                   165                  170                  175                  180  
 gag ctt ccc ctg ggc atg aaa gcc ctg acc cca gag tcc cca gac tcg 873  
 Glu Leu Pro Leu Gly Met Lys Ala Leu Thr Pro Glu Ser Pro Asp Ser  
                   185                  190                  195  
 gag gag ctc ccc tgt tcc agt gag aac agc cgt gag aac ctg cta cat 921  
 Glu Glu Leu Pro Cys Ser Ser Glu Asn Ser Arg Glu Asn Leu Leu His  
                   200                  205                  210  
 cag gcc atg cag aat tct ggc atc gtc ctt gag agg gtt gct gga gag 969  
 Gln Ala Met Gln Asn Ser Gly Ile Val Leu Glu Arg Val Ala Gly Glu  
                   215                  220                  225  
 gag agt gct ctg gag cca gcc cct ccc tct ggg tcc agt ccc cag tgc 1017  
 Glu Ser Ala Leu Glu Pro Ala Pro Pro Ser Gly Ser Ser Pro Gln Cys  
                   230                  235                  240  
 ctg gga gat gga tcc cct gaa ctg cct ctg ctg aag gtg gag cag ata 1065  
 Leu Gly Asp Gly Ser Pro Glu Leu Pro Leu Leu Lys Val Glu Gln Ile

|   |     |     |     |      |
|---|-----|-----|-----|------|
| 245   | 250 | 255 | 260 |      |
| gag aca cag gtg gcc agt gag gcc gcc acc gtg ccc agg acc cac ccg |     |     |     | 1113 |
| Glu Thr Gln Val Ala Ser Glu Ala Ala Thr Val Pro Arg Thr His Pro |     |     |     |      |
|   | 265 | 270 | 275 |      |
| tgc cct cag tgc agt gag act ttc cca aca gca gcc acg ctg gag gcc |     |     |     | 1161 |
| Cys Pro Gln Cys Ser Glu Thr Phe Pro Thr Ala Ala Thr Leu Glu Ala |     |     |     |      |
|   | 280 | 285 | 290 |      |
| cac aag aga ggt cac ata gcg ccg agg ccg ttc acc tgc aca cag tgt |     |     |     | 1209 |
| His Lys Arg Gly His Ile Ala Pro Arg Pro Phe Thr Cys Thr Gln Cys |     |     |     |      |
|   | 295 | 300 | 305 |      |
| ggc aag gcc ttc ccc aaa gcc tac ctg ctc aag aac gac cag gag gtg |     |     |     | 1257 |
| Gly Lys Ala Phe Pro Lys Ala Tyr Leu Leu Lys Asn Asp Gln Glu Val |     |     |     |      |
|   | 310 | 315 | 320 |      |
| cac gtg cac gag cgc cgc ttc cgt tgt gga gac tgt ggg aag ctt tac |     |     |     | 1305 |
| His Val His Glu Arg Arg Phe Arg Cys Gly Asp Cys Gly Lys Leu Tyr |     |     |     |      |
|   | 325 | 330 | 335 | 340  |
| aag acc atc gct cat gtg cgg ggc cac cgg cgt gtt cac tca gac gag |     |     |     | 1353 |
| Lys Thr Ile Ala His Val Arg Gly His Arg Arg Val His Ser Asp Glu |     |     |     |      |
|   | 345 | 350 | 355 |      |
| agg cct ttc cct tgt ccc cag tgc ggc aag cgt tac aaa acc aag aat |     |     |     | 1401 |
| Arg Pro Phe Pro Cys Pro Gln Cys Gly Lys Arg Tyr Lys Thr Lys Asn |     |     |     |      |
|   | 360 | 365 | 370 |      |
| gcc cag caa gta cac ttc cgg aca cac ctg gaa gaa aag ccc cac gtg |     |     |     | 1449 |
| Ala Gln Gln Val His Phe Arg Thr His Leu Glu Glu Lys Pro His Val |     |     |     |      |
|   | 375 | 380 | 385 |      |
| tgc cag ttc tgc agc cga ggc ttc cgg gag aag ggc tct ctg gtg cgg |     |     |     | 1497 |
| Cys Gln Phe Cys Ser Arg Gly Phe Arg Glu Lys Gly Ser Leu Val Arg |     |     |     |      |
|   | 390 | 395 | 400 |      |
| cat gtg agg cac cac aca ggc gag aaa cct ttc aag tgc tac aag tgt |     |     |     | 1545 |



His Val Arg His His Thr Gly Glu Lys Pro Phe Lys Cys Tyr Lys Cys  
 405 410 415 420  
 ggc cgt ggc ttc gcg gac gat ggc aca ctc aac cgg cac ctg cgc act 1593  
 Gly Arg Gly Phe Ala Asp Asp Gly Thr Leu Asn Arg His Leu Arg Thr  
 425 430 435  
 aaa ggg ggc tgc ctg cta gaa gtg gag gag ttg ctg gtg tct gag gag 1641  
 Lys Gly Gly Cys Leu Leu Glu Val Glu Glu Leu Leu Val Ser Glu Glu  
 440 445 450  
 agc cct tct gcg gct gcc act gtg ctt gca gaa gac ccc cac acc gtg 1689  
 Ser Pro Ser Ala Ala Ala Thr Val Leu Ala Glu Asp Pro His Thr Val  
 455 460 465  
 ctg gtg cag ttc tcg tct gtg gta gct gat acc caa gag tac att att 1737  
 Leu Val Gln Phe Ser Ser Val Val Ala Asp Thr Gln Glu Tyr Ile Ile  
 470 475 480  
 gag gcc act gca gat gac aca gag acc agt gaa gcc acc gag atc att 1785  
 Glu Ala Thr Ala Asp Asp Thr Glu Thr Ser Glu Ala Thr Glu Ile Ile  
 485 490 495 500  
 gag ggc acg cag aca gag gtg gac agt cac atc atg aag gtg gtc cag 1833  
 Glu Gly Thr Gln Thr Glu Val Asp Ser His Ile Met Lys Val Val Gln  
 505 510 515  
 cag atc gtg cac cag gct ggt gct ggg cac cag atc atc gtg cag aat 1881  
 Gln Ile Val His Gln Ala Gly Ala Gly His Gln Ile Ile Val Gln Asn  
 520 525 530  
 gtc acc atg gac cag gag aca gca ctg ggt tcg gag gca gct gct gca 1929  
 Val Thr Met Asp Gln Glu Thr Ala Leu Gly Ser Glu Ala Ala Ala Ala  
 535 540 545  
 gac acg atc acc att gcc act cct gag agt ctt act gag cag gtg gcc 1977  
 Asp Thr Ile Thr Ile Ala Thr Pro Glu Ser Leu Thr Glu Gln Val Ala  
 550 555 560

atg aca ctg gct tca gcg atc agt gag ggt act gtg ctc aca gcc cgg 2025  
 Met Thr Leu Ala Ser Ala Ile Ser Glu Gly Thr Val Leu Thr Ala Arg  
 565 570 575 580  
 gca ggt cca aac agt act gaa cag gcc act gtg aca atg gtg tca tca 2073  
 Ala Gly Pro Asn Ser Thr Glu Gln Ala Thr Val Thr Met Val Ser Ser  
 585 590 595  
 gag gac ata gag atc ctt gag cac gga gga gag ctg gtc att gct tca 2121  
 Glu Asp Ile Glu Ile Leu Glu His Gly Gly Glu Leu Val Ile Ala Ser  
 600 605 610  
 cca gag ggc cag ctt gag gta cag acg gtc atc gta tag ttgagggcc 2170  
 Pro Glu Gly Gln Leu Glu Val Gln Thr Val Ile Val  
 615 620 625  
 tctgctgtgg aagatcgagg accctgagtg tctgcccgca ctgcctggt cagaagactt 2230  
 caggcagcca aaggagagag agagagagag agagagagag aacaggcagt ttggggattg 2290  
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<210> 900

<211> 624

<212> PRT

<213> Mus musculus

<400> 900

Met Ala Glu Ala Pro Gly Ser Pro Asn His Gln Glu Leu Gly Leu Leu  
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 Gly Glu Gly Glu Gln Ala His Val Lys Leu Leu Val Asn Lys Glu Gly  
 20 25 30  
 Arg Tyr Val Cys Met Leu Cys His Lys Thr Phe Lys Thr Gly Ser Ile  
 35 40 45  
 Leu Lys Ala His Met Val Thr His Ser Ser Arg Lys Asp His Glu Cys

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| 50  | 55  | 60  |     |     |     |
| Lys | Leu | Cys | Gly | Ala | Ser |
|     | Phe | Arg | Thr | Lys | Gly |
|     | Ser | Leu | Ile | Arg | His |
| 65  | 70  | 75  | 80  |     |     |
| His | Arg | Arg | His | Thr | Asp |
|     | Glu | Arg | Pro | Tyr | Lys |
|     | Cys | Ala | Lys | Cys | Gly |
|     | 85  | 90  | 95  |     |     |
| Lys | Ser | Phe | Arg | Glu | Ser |
|     | Gly | Ala | Leu | Thr | Arg |
|     | His | Leu | Lys | Ser | Leu |
|     | 100 | 105 | 110 |     |     |
| Thr | Pro | Cys | Thr | Glu | Lys |
|     | Ile | Arg | Phe | Ser | Ile |
|     | Ser | Lys | Asp | Thr | Ala |
|     | 115 | 120 | 125 |     |     |
| Val | Gly | Lys | Glu | Glu | Val |
|     | Pro | Ala | Gly | Ser | Ser |
|     | Ala | Ser | Thr | Val | Gly |
|     | 130 | 135 | 140 |     |     |
| Thr | Val | Thr | Ser | Ser | Val |
|     | Ala | Gly | Asp | Pro | Met |
|     | Glu | Thr | Ser | Pro | Val |
| 145 | 150 | 155 | 160 |     |     |
| Ile | His | Leu | Val | Thr | Asp |
|     | Ala | Lys | Gly | Thr | Val |
|     | Ile | His | Glu | Val | His |
|     | 165 | 170 | 175 |     |     |
| Val | Gln | Met | Gln | Glu | Leu |
|     | Pro | Leu | Gly | Met | Lys |
|     | Ala | Leu | Thr | Pro | Glu |
|     | 180 | 185 | 190 |     |     |
| Ser | Pro | Asp | Ser | Glu | Glu |
|     | Leu | Pro | Cys | Ser | Ser |
|     | Glu | Asn | Ser | Arg | Glu |
|     | 195 | 200 | 205 |     |     |
| Asn | Leu | Leu | His | Gln | Ala |
|     | Met | Gln | Asn | Ser | Gly |
|     | Ile | Val | Leu | Glu | Arg |
|     | 210 | 215 | 220 |     |     |
| Val | Ala | Gly | Glu | Glu | Ser |
|     | Ala | Leu | Glu | Pro | Ala |
|     | Pro | Pro | Ser | Gly | Ser |
| 225 | 230 | 235 | 240 |     |     |
| Ser | Pro | Gln | Cys | Leu | Gly |
|     | Asp | Gly | Ser | Pro | Glu |
|     | Leu | Pro | Leu | Leu | Lys |
|     | 245 | 250 | 255 |     |     |
| Val | Glu | Gln | Ile | Glu | Thr |
|     | Gln | Val | Ala | Ser | Glu |
|     | Ala | Ala | Thr | Val | Pro |
|     | 260 | 265 | 270 |     |     |
| Arg | Thr | His | Pro | Cys | Pro |
|     | Gln | Cys | Ser | Glu | Thr |
|     | Phe | Pro | Thr | Ala | Ala |
|     | 275 | 280 | 285 |     |     |

Thr Leu Glu Ala His Lys Arg Gly His Ile Ala Pro Arg Pro Phe Thr  
 290 295 300  
 Cys Thr Gln Cys Gly Lys Ala Phe Pro Lys Ala Tyr Leu Leu Lys Asn  
 305 310 315 320  
 Asp Gln Glu Val His Val His Glu Arg Arg Phe Arg Cys Gly Asp Cys  
 325 330 335  
 Gly Lys Leu Tyr Lys Thr Ile Ala His Val Arg Gly His Arg Arg Val  
 340 345 350  
 His Ser Asp Glu Arg Pro Phe Pro Cys Pro Gln Cys Gly Lys Arg Tyr  
 355 360 365  
 Lys Thr Lys Asn Ala Gln Gln Val His Phe Arg Thr His Leu Glu Glu  
 370 375 380  
 Lys Pro His Val Cys Gln Phe Cys Ser Arg Gly Phe Arg Glu Lys Gly  
 385 390 395 400  
 Ser Leu Val Arg His Val Arg His His Thr Gly Glu Lys Pro Phe Lys  
 405 410 415  
 Cys Tyr Lys Cys Gly Arg Gly Phe Ala Asp Asp Gly Thr Leu Asn Arg  
 420 425 430  
 His Leu Arg Thr Lys Gly Gly Cys Leu Leu Glu Val Glu Glu Leu Leu  
 435 440 445  
 Val Ser Glu Glu Ser Pro Ser Ala Ala Ala Thr Val Leu Ala Glu Asp  
 450 455 460  
 Pro His Thr Val Leu Val Gln Phe Ser Ser Val Val Ala Asp Thr Gln  
 465 470 475 480  
 Glu Tyr Ile Ile Glu Ala Thr Ala Asp Asp Thr Glu Thr Ser Glu Ala  
 485 490 495  
 Thr Glu Ile Ile Glu Gly Thr Gln Thr Glu Val Asp Ser His Ile Met  
 500 505 510  
 Lys Val Val Gln Gln Ile Val His Gln Ala Gly Ala Gly His Gln Ile

|   |     |     |
|---|-----|-----|
| 515   | 520 | 525 |
| Ile Val Gln Asn Val Thr Met Asp Gln Glu Thr Ala Leu Gly Ser Glu |     |     |
| 530   | 535 | 540 |
| Ala Ala Ala Ala Asp Thr Ile Thr Ile Ala Thr Pro Glu Ser Leu Thr |     |     |
| 545   | 550 | 555 |
| Glu Gln Val Ala Met Thr Leu Ala Ser Ala Ile Ser Glu Gly Thr Val |     |     |
| 565   | 570 | 575 |
| Leu Thr Ala Arg Ala Gly Pro Asn Ser Thr Glu Gln Ala Thr Val Thr |     |     |
| 580   | 585 | 590 |
| Met Val Ser Ser Glu Asp Ile Glu Ile Leu Glu His Gly Gly Glu Leu |     |     |
| 595   | 600 | 605 |
| Val Ile Ala Ser Pro Glu Gly Gln Leu Glu Val Gln Thr Val Ile Val |     |     |
| 610   | 615 | 620 |

&lt;210&gt; 901

&lt;211&gt; 504

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 901

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 atccccctag agaacctgga gaggctcaga aaattgatcg aatgatggag gcctttgccc 120  
 agagatactg cttatgcaac cctgggggtct tccagtctac agacaccctg ctacgtgttg 180  
 tcctttgccg tgatcatgct gaacaccagc ctttcaaate ccaatgtcag gggaaaagcg 240  
 gggcttgaac gcttttgttg ccatggaccc ggggaatcac gaggtttggg atctgcctga 300  
 ggatcttctc aggaacctct acgacagcat ccggcggcgc aacgaagagc tgctgggttg 360  
 agattcagcg cctgtcagaa agagctaagt gaagctatga gccaggttga gggctttgag 420  
 gccaatagg gcagtaagac cttigcagcg gaccggaaaa ttgcaatggg caggaagaat 480  
 ttcacatgga ccccaaaagg ggga 504

&lt;210&gt; 902

&lt;211&gt; 3466

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (54).. (2291)

&lt;400&gt; 902

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gag cgg ccc ccg ggg ctg cgg ccg ggc gcg ggc ggc ccc tgg gag atg      104
Glu Arg Pro Pro Gly Leu Arg Pro Gly Ala Gly Gly Pro Trp Glu Met
           5                10                15
cgg gaa cgg ctt ggc acc ggc ggt ttc ggg aac gtc agt ctg tac cag      152
Arg Glu Arg Leu Gly Thr Gly Gly Phe Gly Asn Val Ser Leu Tyr Gln
           20                25                30
cac cgg gaa ctt gat ctc aaa ata gca att aag tct tgt cgt tta gag      200
His Arg Glu Leu Asp Leu Lys Ile Ala Ile Lys Ser Cys Arg Leu Glu
           35                40                45
cta agt tcc aaa aac aga gag cga tgg tgc cat gaa atc cag atc atg      248
Leu Ser Ser Lys Asn Arg Glu Arg Trp Cys His Glu Ile Gln Ile Met
           50                55                60                65
aaa aag ttg gac cat gcg aat gtt gta aag gcc tgt gat gtc cct gag      296
Lys Lys Leu Asp His Ala Asn Val Val Lys Ala Cys Asp Val Pro Glu
           70                75                80

```

gaa ttg aac ttt tta att aac gat gtg cct ctt ctg gca atg gag tac 344  
 Glu Leu Asn Phe Leu Ile Asn Asp Val Pro Leu Leu Ala Met Glu Tyr  
                   85                                  90                                  95  
 tgt tct gga ggg gac ctc cgg aag cta ctc aac aaa cca gaa aat tgt 392  
 Cys Ser Gly Gly Asp Leu Arg Lys Leu Leu Asn Lys Pro Glu Asn Cys  
                   100                                  105                                  110  
 tgt gga ctt aaa gaa agc cag ata ctt tct tta ctg agt gac ata gga 440  
 Cys Gly Leu Lys Glu Ser Gln Ile Leu Ser Leu Leu Ser Asp Ile Gly  
                   115                                  120                                  125  
 tct ggg atc cga tat ctg cat gaa aac aaa att ata cat cga gat cta 488  
 Ser Gly Ile Arg Tyr Leu His Glu Asn Lys Ile Ile His Arg Asp Leu  
 130                                  135                                  140                                  145  
 aaa cct gaa aat ata gtt ctt caa gat gtt ggt ggg aag aca ata cat 536  
 Lys Pro Glu Asn Ile Val Leu Gln Asp Val Gly Gly Lys Thr Ile His  
                                   150                                  155                                  160  
 aaa ata att gat ttg ggt tat gcc aaa gat gtt gat caa gga agt ctc 584  
 Lys Ile Ile Asp Leu Gly Tyr Ala Lys Asp Val Asp Gln Gly Ser Leu  
                                   165                                  170                                  175  
 tgt aca tct ttt gtg gga aca ttg cag tat ttg gcc cca gag ctc ttt 632  
 Cys Thr Ser Phe Val Gly Thr Leu Gln Tyr Leu Ala Pro Glu Leu Phe  
                   180                                  185                                  190  
 gaa aat aag ccg tac aca gcc act gtg gat tat tgg agc ttt ggg acc 680  
 Glu Asn Lys Pro Tyr Thr Ala Thr Val Asp Tyr Trp Ser Phe Gly Thr  
                   195                                  200                                  205  
 atg gtg ttt gaa tgt att gct gga tat agg cct ttt ttg cat cat ctg 728  
 Met Val Phe Glu Cys Ile Ala Gly Tyr Arg Pro Phe Leu His His Leu  
 210                                  215                                  220                                  225  
 cag cca ttt acc tgg cat gag aag att aag aag aaa gat cca aag tgt 776  
 Gln Pro Phe Thr Trp His Glu Lys Ile Lys Lys Lys Asp Pro Lys Cys

|   |     |     |      |
|---|-----|-----|------|
| 230   | 235 | 240 |      |
| ata ttt gca tgt gaa gag atg act gga gaa gtt cgg ttt agt agc cat |     |     | 824  |
| Ile Phe Ala Cys Glu Glu Met Thr Gly Glu Val Arg Phe Ser Ser His |     |     |      |
| 245   | 250 | 255 |      |
| tta cct cag cca aac agc ctt tgt agt tta ata gta gag cca atg gaa |     |     | 872  |
| Leu Pro Gln Pro Asn Ser Leu Cys Ser Leu Ile Val Glu Pro Met Glu |     |     |      |
| 260   | 265 | 270 |      |
| agc tgg ctc caa ttg atg ctg aat tgg gac cca cag cag aga ggg gga |     |     | 920  |
| Ser Trp Leu Gln Leu Met Leu Asn Trp Asp Pro Gln Gln Arg Gly Gly |     |     |      |
| 275   | 280 | 285 |      |
| cct att gat ctt act ttg aag cag cca aga tgt ttt gca tta atg gat |     |     | 968  |
| Pro Ile Asp Leu Thr Leu Lys Gln Pro Arg Cys Phe Ala Leu Met Asp |     |     |      |
| 290   | 295 | 300 | 305  |
| cac att ctc aat tta aag ata gtg cac atc cta aat atg act tct gca |     |     | 1016 |
| His Ile Leu Asn Leu Lys Ile Val His Ile Leu Asn Met Thr Ser Ala |     |     |      |
| 310   | 315 | 320 |      |
| aaa atc att tct ttt ctg tta cca tgt gat gaa agt ctt cat tca cta |     |     | 1064 |
| Lys Ile Ile Ser Phe Leu Leu Pro Cys Asp Glu Ser Leu His Ser Leu |     |     |      |
| 325   | 330 | 335 |      |
| cag tct cga att gag cgt gaa aca gga ata aat aca ggt tct cag gag |     |     | 1112 |
| Gln Ser Arg Ile Glu Arg Glu Thr Gly Ile Asn Thr Gly Ser Gln Glu |     |     |      |
| 340   | 345 | 350 |      |
| ctt ctg tca gag aca ggg att tct ctg gat cct cgg aaa cca gcc tct |     |     | 1160 |
| Leu Leu Ser Glu Thr Gly Ile Ser Leu Asp Pro Arg Lys Pro Ala Ser |     |     |      |
| 355   | 360 | 365 |      |
| cag tgt gtt cta gat gga gtt aga ggc tgt gat agc tac atg gtt tat |     |     | 1208 |
| Gln Cys Val Leu Asp Gly Val Arg Gly Cys Asp Ser Tyr Met Val Tyr |     |     |      |
| 370   | 375 | 380 | 385  |
| ttg ttt gat aaa agt aag act gta tat gaa gga cca ttt gca tcc aga |     |     | 1256 |



|   |      |
|---|------|
| Leu Phe Asp Lys Ser Lys Thr Val Tyr Glu Gly Pro Phe Ala Ser Arg |      |
| 390 395 400   |      |
| agt tta tct gat tgt gta aat tat att gta caa gac agc aaa ata caa | 1304 |
| Ser Leu Ser Asp Cys Val Asn Tyr Ile Val Gln Asp Ser Lys Ile Gln |      |
| 405 410 415   |      |
| ctg cca att ata cag ctg cgg aaa gta tgg gct gaa gca gtg cac tac | 1352 |
| Leu Pro Ile Ile Gln Leu Arg Lys Val Trp Ala Glu Ala Val His Tyr |      |
| 420 425 430   |      |
| gta tct ggg cta aag gaa gac tac agc agg ctc ttc cag gga caa aga | 1400 |
| Val Ser Gly Leu Lys Glu Asp Tyr Ser Arg Leu Phe Gln Gly Gln Arg |      |
| 435 440 445   |      |
| gca gca atg tta agt ctt ctt aga tat aat gct aac ttg aca aaa atg | 1448 |
| Ala Ala Met Leu Ser Leu Leu Arg Tyr Asn Ala Asn Leu Thr Lys Met |      |
| 450 455 460 465   |      |
| aag aat act ttg atc tca gca tca cag caa ctc aaa gct aaa ttg gag | 1496 |
| Lys Asn Thr Leu Ile Ser Ala Ser Gln Gln Leu Lys Ala Lys Leu Glu |      |
| 470 475 480   |      |
| ttt ttt cga aaa agc att cag ctt gac ttg gag aga tat agt gag cag | 1544 |
| Phe Phe Arg Lys Ser Ile Gln Leu Asp Leu Glu Arg Tyr Ser Glu Gln |      |
| 485 490 495   |      |
| atg act tat ggg ata tct tca gaa aaa atg tta aaa gca tgg aaa gaa | 1592 |
| Met Thr Tyr Gly Ile Ser Ser Glu Lys Met Leu Lys Ala Trp Lys Glu |      |
| 500 505 510   |      |
| atg gaa gaa aag gcc att cac tat tct gag gtt ggt gtc att ggt tat | 1640 |
| Met Glu Glu Lys Ala Ile His Tyr Ser Glu Val Gly Val Ile Gly Tyr |      |
| 515 520 525   |      |
| ctt gag gat caa att atg tct ttg cac act gaa atc atg gag ctg cag | 1688 |
| Leu Glu Asp Gln Ile Met Ser Leu His Thr Glu Ile Met Glu Leu Gln |      |
| 530 535 540 545   |      |

aag agc ccc tac gga cga cgc cag gga gac ttg atg gag tct ctg gag 1736  
 Lys Ser Pro Tyr Gly Arg Arg Gln Gly Asp Leu Met Glu Ser Leu Glu  
 550 555 560  
 cag cgt gcc att gat ctc tat aag cag cta aag cac aga cct cct gat 1784  
 Gln Arg Ala Ile Asp Leu Tyr Lys Gln Leu Lys His Arg Pro Pro Asp  
 565 570 575  
 cac ttg tac agc gac agc aca gag atg gtg aag atc atc gtg cac acc 1832  
 His Leu Tyr Ser Asp Ser Thr Glu Met Val Lys Ile Ile Val His Thr  
 580 585 590  
 gtg cag agt cag gac cgt gtt ctc aag gag ctg ttt ggt cac ctg agc 1880  
 Val Gln Ser Gln Asp Arg Val Leu Lys Glu Leu Phe Gly His Leu Ser  
 595 600 605  
 aag ttg ttg ggc tgc aag cag aag att att gat cta ctc ccc aag gtg 1928  
 Lys Leu Leu Gly Cys Lys Gln Lys Ile Ile Asp Leu Leu Pro Lys Val  
 610 615 620 625  
 gaa gtg gcc ctc agt aac atc aaa gaa gct gac aat act gtc atg ttt 1976  
 Glu Val Ala Leu Ser Asn Ile Lys Glu Ala Asp Asn Thr Val Met Phe  
 630 635 640  
 atg cag gga aag agg cag aaa gaa att tgg cac ctc ctt aaa att gcc 2024  
 Met Gln Gly Lys Arg Gln Lys Glu Ile Trp His Leu Leu Lys Ile Ala  
 645 650 655  
 tgt aca cag agt tct gcc cgc tct ctt gta gga tcc agt cta gaa ggc 2072  
 Cys Thr Gln Ser Ser Ala Arg Ser Leu Val Gly Ser Ser Leu Glu Gly  
 660 665 670  
 aca gta acc cct cca gta tca gca tgg ctg ccc cct aca tta gca gac 2120  
 Thr Val Thr Pro Pro Val Ser Ala Trp Leu Pro Pro Thr Leu Ala Asp  
 675 680 685  
 cgt gaa cat cct ctg aca tgt gtg gta act cct caa gat gga gag acg 2168  
 Arg Glu His Pro Leu Thr Cys Val Val Thr Pro Gln Asp Gly Glu Thr

|  |     |     |     |      |
|--|-----|-----|-----|------|
| 690  | 695 | 700 | 705 |      |
| tta gca caa atg ata gaa gaa aat ctg aac tgt ctt ggc cat tta agt    |     |     |     | 2216 |
| Leu Ala Gln Met Ile Glu Glu Asn Leu Asn Cys Leu Gly His Leu Ser    |     |     |     |      |
|  | 715 |     | 720 |      |
| act att att cgt gaa gca aat gag gac cag agc agt agt ttg atg agt    |     |     |     | 2264 |
| Thr Ile Ile Arg Glu Ala Asn Glu Asp Gln Ser Ser Ser Leu Met Ser    |     |     |     |      |
|  | 725 | 730 | 735 |      |
| ctt gat tgg agt tgg tta gca gaa tga ctgcacactc gttcactgtc          |     |     |     | 2311 |
| Leu Asp Trp Ser Trp Leu Ala Glu                                    |     |     |     |      |
|  | 740 | 745 |     |      |
| ctggagccta cgaagctggt ttgtcattta ctccaaagtc atctttactt gctgaagcca  |     |     |     | 2371 |
| ttcctcacctt accagtcctt gaggagatgg ctgtgatcgg aaactacgag tgactttaca |     |     |     | 2431 |
| agcacagtag ctiggtgttt tgtttgtttc taataattat gatctctgaa cagatagaat  |     |     |     | 2491 |
| tttatagcaa attagtgaat ttaattattc tttttaacac cgcaactaat gagggagatc  |     |     |     | 2551 |
| attagtgacc tgccttatctt ataaaattgg aaaaatacta ctactagttt agctgatgaa |     |     |     | 2611 |
| aaagataatc ttctaaaggc ctaaaatttc ggcataaggc ccaacatggg attagtatac  |     |     |     | 2671 |
| aggaatgaaa aattcaccca gtgttcattt gaagtaaagt tttatctatg ggttttctgt  |     |     |     | 2731 |
| ggaagagact gctgacaagt aaaattgctc ttccctgaaga ctaagcccag cctccttggt |     |     |     | 2791 |
| ttgctctcag caagtgttct tcatggcatc acatggagtc agatgaatcc catctttaat  |     |     |     | 2851 |
| cacacattta atagagtcct ttccctgtgt aaggggttgg acttttgtgc ctttgataatc |     |     |     | 2911 |
| agctgacat aatgaattgt gttgtgtgct atatgtatat gtatttaagg tgtacattta   |     |     |     | 2971 |
| ataatatcaa agagaagatg cctgttaatt tataatgtat ttgaaagttg tattgttttt  |     |     |     | 3031 |
| gcatttgtaa aaatgggtta ctgttttaaa caatctttta tgtcttgtca tacaaattcc  |     |     |     | 3091 |
| aaagggtctg caticcttta tctgtaatta cagtctcaga atccaagttc tgaaaacaag  |     |     |     | 3151 |
| gtatctattc tgatctgaca ctggatctgc ttatcccat tagtgtgaat attcattgat   |     |     |     | 3211 |
| ttatgtgttt gattattggg atgtgctgcc acaggctctc ttgaaggttg atgtagtgtg  |     |     |     | 3271 |
| gcgtatgcac tgaattacct ttctaaaatc tgaacagttc tcattctgaa acatctagac  |     |     |     | 3331 |
| ttaagggttt cagataaaag actgcggttc tctgccttat gttaaataac ttagaagatg  |     |     |     | 3391 |
| ttattttgtt tgaaaaaatg tgaaatgctt ttatatctta gtttttact ttgcatatta   |     |     |     | 3451 |

aatgat t t t t t a aaatt

3466

&lt;210&gt; 903

&lt;211&gt; 745

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 903

Met Glu Arg Pro Pro Gly Leu Arg Pro Gly Ala Gly Gly Pro Trp Glu  
 1 5 10 15  
 Met Arg Glu Arg Leu Gly Thr Gly Gly Phe Gly Asn Val Ser Leu Tyr  
 20 25 30  
 Gln His Arg Glu Leu Asp Leu Lys Ile Ala Ile Lys Ser Cys Arg Leu  
 35 40 45  
 Glu Leu Ser Ser Lys Asn Arg Glu Arg Trp Cys His Glu Ile Gln Ile  
 50 55 60  
 Met Lys Lys Leu Asp His Ala Asn Val Val Lys Ala Cys Asp Val Pro  
 65 70 75 80  
 Glu Glu Leu Asn Phe Leu Ile Asn Asp Val Pro Leu Leu Ala Met Glu  
 85 90 95  
 Tyr Cys Ser Gly Gly Asp Leu Arg Lys Leu Leu Asn Lys Pro Glu Asn  
 100 105 110  
 Cys Cys Gly Leu Lys Glu Ser Gln Ile Leu Ser Leu Leu Ser Asp Ile  
 115 120 125  
 Gly Ser Gly Ile Arg Tyr Leu His Glu Asn Lys Ile Ile His Arg Asp  
 130 135 140  
 Leu Lys Pro Glu Asn Ile Val Leu Gln Asp Val Gly Gly Lys Thr Ile  
 145 150 155 160  
 His Lys Ile Ile Asp Leu Gly Tyr Ala Lys Asp Val Asp Gln Gly Ser

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 165 |     | 170 |     | 175 |
| Leu Cys Thr Ser Phe Val Gly Thr Leu Gln Tyr Leu Ala Pro Glu Leu |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Phe Glu Asn Lys Pro Tyr Thr Ala Thr Val Asp Tyr Trp Ser Phe Gly |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |
| Thr Met Val Phe Glu Cys Ile Ala Gly Tyr Arg Pro Phe Leu His His |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |
| Leu Gln Pro Phe Thr Trp His Glu Lys Ile Lys Lys Lys Asp Pro Lys |     |     |     |     |     |
| 225   |     | 230 |     | 235 | 240 |
| Cys Ile Phe Ala Cys Glu Glu Met Thr Gly Glu Val Arg Phe Ser Ser |     |     |     |     |     |
|   | 245 |     | 250 |     | 255 |
| His Leu Pro Gln Pro Asn Ser Leu Cys Ser Leu Ile Val Glu Pro Met |     |     |     |     |     |
|   | 260 |     | 265 |     | 270 |
| Glu Ser Trp Leu Gln Leu Met Leu Asn Trp Asp Pro Gln Gln Arg Gly |     |     |     |     |     |
|   | 275 |     | 280 |     | 285 |
| Gly Pro Ile Asp Leu Thr Leu Lys Gln Pro Arg Cys Phe Ala Leu Met |     |     |     |     |     |
|   | 290 |     | 295 |     | 300 |
| Asp His Ile Leu Asn Leu Lys Ile Val His Ile Leu Asn Met Thr Ser |     |     |     |     |     |
| 305   |     | 310 |     | 315 | 320 |
| Ala Lys Ile Ile Ser Phe Leu Leu Pro Cys Asp Glu Ser Leu His Ser |     |     |     |     |     |
|   | 325 |     | 330 |     | 335 |
| Leu Gln Ser Arg Ile Glu Arg Glu Thr Gly Ile Asn Thr Gly Ser Gln |     |     |     |     |     |
|   | 340 |     | 345 |     | 350 |
| Glu Leu Leu Ser Glu Thr Gly Ile Ser Leu Asp Pro Arg Lys Pro Ala |     |     |     |     |     |
|   | 355 |     | 360 |     | 365 |
| Ser Gln Cys Val Leu Asp Gly Val Arg Gly Cys Asp Ser Tyr Met Val |     |     |     |     |     |
|   | 370 |     | 375 |     | 380 |
| Tyr Leu Phe Asp Lys Ser Lys Thr Val Tyr Glu Gly Pro Phe Ala Ser |     |     |     |     |     |
| 385   |     | 390 |     | 395 | 400 |

Arg Ser Leu Ser Asp Cys Val Asn Tyr Ile Val Gln Asp Ser Lys Ile  
 405 410 415  
 Gln Leu Pro Ile Ile Gln Leu Arg Lys Val Trp Ala Glu Ala Val His  
 420 425 430  
 Tyr Val Ser Gly Leu Lys Glu Asp Tyr Ser Arg Leu Phe Gln Gly Gln  
 435 440 445  
 Arg Ala Ala Met Leu Ser Leu Leu Arg Tyr Asn Ala Asn Leu Thr Lys  
 450 455 460  
 Met Lys Asn Thr Leu Ile Ser Ala Ser Gln Gln Leu Lys Ala Lys Leu  
 465 470 475 480  
 Glu Phe Phe Arg Lys Ser Ile Gln Leu Asp Leu Glu Arg Tyr Ser Glu  
 485 490 495  
 Gln Met Thr Tyr Gly Ile Ser Ser Glu Lys Met Leu Lys Ala Trp Lys  
 500 505 510  
 Glu Met Glu Glu Lys Ala Ile His Tyr Ser Glu Val Gly Val Ile Gly  
 515 520 525  
 Tyr Leu Glu Asp Gln Ile Met Ser Leu His Thr Glu Ile Met Glu Leu  
 530 535 540  
 Gln Lys Ser Pro Tyr Gly Arg Arg Gln Gly Asp Leu Met Glu Ser Leu  
 545 550 555 560  
 Glu Gln Arg Ala Ile Asp Leu Tyr Lys Gln Leu Lys His Arg Pro Pro  
 565 570 575  
 Asp His Leu Tyr Ser Asp Ser Thr Glu Met Val Lys Ile Ile Val His  
 580 585 590  
 Thr Val Gln Ser Gln Asp Arg Val Leu Lys Glu Leu Phe Gly His Leu  
 595 600 605  
 Ser Lys Leu Leu Gly Cys Lys Gln Lys Ile Ile Asp Leu Leu Pro Lys  
 610 615 620  
 Val Glu Val Ala Leu Ser Asn Ile Lys Glu Ala Asp Asn Thr Val Met

|   |     |     |     |
|---|-----|-----|-----|
| 625   | 630 | 635 | 640 |
| Phe Met Gln Gly Lys Arg Gln Lys Glu Ile Trp His Leu Leu Lys Ile |     |     |     |
|   | 645 | 650 | 655 |
| Ala Cys Thr Gln Ser Ser Ala Arg Ser Leu Val Gly Ser Ser Leu Glu |     |     |     |
|   | 660 | 665 | 670 |
| Gly Thr Val Thr Pro Pro Val Ser Ala Trp Leu Pro Pro Thr Leu Ala |     |     |     |
|   | 675 | 680 | 685 |
| Asp Arg Glu His Pro Leu Thr Cys Val Val Thr Pro Gln Asp Gly Glu |     |     |     |
|   | 690 | 695 | 700 |
| Thr Leu Ala Gln Met Ile Glu Glu Asn Leu Asn Cys Leu Gly His Leu |     |     |     |
| 705   | 710 | 715 | 720 |
| Ser Thr Ile Ile Arg Glu Ala Asn Glu Asp Gln Ser Ser Ser Leu Met |     |     |     |
|   | 725 | 730 | 735 |
| Ser Leu Asp Trp Ser Trp Leu Ala Glu                             |     |     |     |
|   | 740 | 745 |     |

&lt;210&gt; 904

&lt;211&gt; 13815

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 904

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cctcactcac ttgccctta caggactcag ctcttgaagg caatagcttt atagaaaaaa 60
cgaataggaa gacttgaagt gctatititit tttitititit tgtcaaggct gctgaagttt 120
attggcttct catcgtaact aagcctcctg gagcaataaa actgggagaa actttttacca 180
agatititit ccttgccttg atatatactt tttctttccaa atgctttggg gggaagaagt 240
agaggactgt tatgaaagag aagatgttca aaagaaaaca ttcacaaaat ggataaatgc 300
acaatititct aagtttggaa agcaacacat agacaacctc ttcagtgacc tgcaggatgg 360
aaaacgcctc ctagacctct tggaaggcct tacagggcaa aaactgccaa aagaaaaggg 420

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| Ser Lys Ala Ala Asp Val Ala Ser Phe Val Lys Leu Ile Leu Gly Asp   |     |     |      |
| 225   | 230 | 235 |      |
| taa aaagccatgg acttaactgg tcgaccctac tgtggattgg tgggtttaca        |     |     | 1195 |
| gggtgaagaa agttcactac agagccaaca gaaagtcata ttgaggtcac tgaaccctgc |     |     | 1255 |
| ctttctgagg ggtttcctct ccccgttttt ctttttcttc tccaaagggg gccttggaa  |     |     | 1315 |
| ctctagcgta ggctgaactc tctagatgga tgaaatacaa caaaggctta ggacttgaaa |     |     | 1375 |
| tggtgattaa atatittaag gcaagtcata cgggtgggtc ctcgagcttc tcagatctct |     |     | 1435 |
| cgtgttcttt acgaaatgaa tgcaattggc cctggtaaca aggtgctaca gtagtgaaga |     |     | 1495 |
| gattgtgaag tagattigta gcgtatcca cttattattt taatatttat gtttcagtgc  |     |     | 1555 |
| tiggttggaa atattccatt ttatgcaaga agggagatac agagacaggg ctgactcggc |     |     | 1615 |
| agtatttata gggcttttat ttttttgag ttcaatcatg tctgtgtcc agaggaagtt   |     |     | 1675 |
| atttaatatg catttttaag gatattataa aaatctccag caaaggggt cttcctgtac  |     |     | 1735 |
| agtgtggctt gcagctctca tggctgtgc tccgactgt caactcaacc gtggctgac    |     |     | 1795 |
| atcgcatcgt ttgaatgaac tgtcaaagtt aatgtccccc cgcctccctc ccccaacttt |     |     | 1855 |
| gaaaaccatg aaagtcactt gtatcacggc tcaaagagta aaaaaataca atggttctct |     |     | 1915 |
| tcaaaaaaca aaaaaaaaaa aaaaaaaaaa ctcgagagta cttctagagc ggccgcgggc |     |     | 1975 |
| ccatcgattt tccaccggg tgggttacca ggtaagtgt                         |     |     | 2015 |

&lt;210&gt; 907

&lt;211&gt; 237

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 907

Met Asp Leu Asp Val Ser Met Arg Thr Val Asp Cys Pro Phe Thr Val  
 1 5 10 15  
 Thr Phe Tyr Gly Ala Leu Phe Arg Glu Gly Asp Val Trp Ile Cys Met  
 20 25 30  
 Glu Leu Met Asp Thr Ser Leu Asp Lys Phe Tyr Lys Gln Val Ile Asp  
 35 40 45  
 Lys Gly Gln Thr Ile Pro Glu Asp Ile Leu Gly Lys Ile Ala Val Ser  
 50 55 60  
 Ile Val Lys Ala Leu Glu His Leu His Ser Lys Leu Ser Val Ile His  
 65 70 75 80  
 Arg Asp Val Lys Pro Ser Asn Val Leu Ile Asn Thr Leu Gly Gln Val  
 85 90 95  
 Lys Met Cys Asp Phe Gly Ile Ser Gly Tyr Leu Val Asp Ser Val Ala  
 100 105 110  
 Lys Thr Ile Asp Ala Gly Cys Lys Pro Tyr Met Ala Pro Glu Arg Ile  
 115 120 125  
 Asn Pro Glu Leu Asn Gln Lys Gly Tyr Ser Val Lys Ser Asp Ile Trp  
 130 135 140  
 Ser Leu Gly Ile Thr Met Ile Glu Leu Ala Ile Leu Arg Phe Pro Tyr  
 145 150 155 160  
 Asp Ser Trp Gly Thr Pro Phe Gln Gln Leu Lys Gln Val Val Glu Glu  
 165 170 175  
 Pro Ser Pro Gln Leu Pro Ala Asp Lys Phe Ser Ala Asp Phe Val Asp

|   |     |     |
|---|-----|-----|
| 180   | 185 | 190 |
| Phe Thr Ser Gln Cys Leu Lys Lys Asn Ser Lys Glu Arg Pro Thr Tyr |     |     |
| 195   | 200 | 205 |
| Pro Glu Leu Met Gln His Pro Phe Phe Thr Val His Glu Ser Lys Ala |     |     |
| 210   | 215 | 220 |
| Ala Asp Val Ala Ser Phe Val Lys Leu Ile Leu Gly Asp             |     |     |
| 225   | 230 | 235 |

&lt;210&gt; 908

&lt;211&gt; 1954

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (552).. (1337)

&lt;400&gt; 908

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aggcggcgcg ggcggccgtg ggcggtgggg cggggcgggg gcggagccgg cggcggggct 60
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tgaggcgtag gccggctgcc gagcgctct cggagctggg ttttcccccg cggcgcgggc 180
gccaggagcc gccttttccg ctgggtgtca ctcgggggtg gggagggtgg cccattgaaa 240
agcgccgcga ggggcccccg ccagtgcctt tcagtgcgcg ctgcgggag gacggcagag 300
agcagcccg ctcaggctcc gggatcttgt ggcgagtcag gacgcgctg tccctctgcc 360
gggaccccg gccaccgccc cgcggccac cgctctgtct cctgcgagtc agccttctct 420
gcgcgctccg ggcggggcggc cgcggaagcc gctggggcga ggacggcgca gggctgctac 480
tgctaccccc agccggagcg tctggaagcc tgaaggccga gcggagcagc agcaccctt 540
atgccggaag g atg ctg gag aac agc ggc tgc aag gcg ctg aag gaa gga 590
Met Leu Glu Asn Ser Gly Cys Lys Ala Leu Lys Glu Gly

```

|   |     |     |      |
|---|-----|-----|------|
| 1   | 5   | 10  |      |
| gtg ctg gaa aag cga agc gac ggg ctg ctg cag ctc tgg aag aaa aag |     |     | 638  |
| Val Leu Glu Lys Arg Ser Asp Gly Leu Leu Gln Leu Trp Lys Lys Lys |     |     |      |
| 15  | 20  | 25  |      |
| tgc tgc atc ctc acc gag gaa ggg cta ctg ctc ata ccg ccc aag cag |     |     | 686  |
| Cys Cys Ile Leu Thr Glu Glu Gly Leu Leu Leu Ile Pro Pro Lys Gln |     |     |      |
| 30  | 35  | 40  | 45   |
| cta caa cag cag cag cag cag caa cag ccc ggg cag ggg acg gcc gaa |     |     | 734  |
| Leu Gln Gln Gln Gln Gln Gln Gln Gln Pro Gly Gln Gly Thr Ala Glu |     |     |      |
| 50  | 55  | 60  |      |
| ccg tcc caa cct agt ggc ccc acc gtc gcc agc ctt gag cca cca gtc |     |     | 782  |
| Pro Ser Gln Pro Ser Gly Pro Thr Val Ala Ser Leu Glu Pro Pro Val |     |     |      |
| 65  | 70  | 75  |      |
| aag ctg aag gaa ttg cac ttt tcc aat atg aag act gta gac tgc gtg |     |     | 830  |
| Lys Leu Lys Glu Leu His Phe Ser Asn Met Lys Thr Val Asp Cys Val |     |     |      |
| 80  | 85  | 90  |      |
| gag cgc aag ggc aag tac atg tac ttc act gtg gtg atg acg gag ggc |     |     | 878  |
| Glu Arg Lys Gly Lys Tyr Met Tyr Phe Thr Val Val Met Thr Glu Gly |     |     |      |
| 95  | 100 | 105 |      |
| aaa gag atc gac ttt cgg tgc ccc cag gac cag ggc tgg aac gcc gag |     |     | 926  |
| Lys Glu Ile Asp Phe Arg Cys Pro Gln Asp Gln Gly Trp Asn Ala Glu |     |     |      |
| 110   | 115 | 120 | 125  |
| atc acg ttg cag atg gtg cag tac aaa aat cgc cag gcc ata ctg gcg |     |     | 974  |
| Ile Thr Leu Gln Met Val Gln Tyr Lys Asn Arg Gln Ala Ile Leu Ala |     |     |      |
| 130   | 135 | 140 |      |
| gtc aag tct acc agg cag aag cag cag cac ctg gtc cag cag cag cct |     |     | 1022 |
| Val Lys Ser Thr Arg Gln Lys Gln Gln His Leu Val Gln Gln Gln Pro |     |     |      |
| 145   | 150 | 155 |      |
| ccg cag acg cag cag atc caa ccc cag ccc cag ccg cag atc caa ccc |     |     | 1070 |

Pro Gln Thr Gln Gln Ile Gln Pro Gln Pro Gln Pro Gln Ile Gln Pro  
 160 165 170  
 cag ccc cag ccg cag atc cag cct caa ccc caa ccc cag ccc caa cct 1118  
 Gln Pro Gln Pro Gln Ile Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro  
 175 180 185  
 cag ccc caa cct cag ccc caa ccc caa ccc caa cag ctc cac tcc tac 1166  
 Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Gln Leu His Ser Tyr  
 190 195 200 205  
 ccg cat ccg cat cct cat cct tac tct cac ccg cac cag cac cca cac 1214  
 Pro His Pro His Pro His Pro Tyr Ser His Pro His Gln His Pro His  
 210 215 220  
 ccg cac ccg cac ccg cac cct cac cct cac cct cac ccg tac caa ctc 1262  
 Pro His Pro His Pro His Pro His Pro His Pro His Pro Tyr Gln Leu  
 225 230 235  
 cag cac gcg cac cag cct ctt cac tcg cag ccg cag ggt cac cgg ctt 1310  
 Gln His Ala His Gln Pro Leu His Ser Gln Pro Gln Gly His Arg Leu  
 240 245 250  
 ctc cgc agc acc tcc aac tct gcc tga agagggcggc acccgggcca 1357  
 Leu Arg Ser Thr Ser Asn Ser Ala  
 255 260  
 ctcaaggttt tgaggacttc ggaaagtggg aagagtgcac tgctattcag ttcacttggc 1417  
 tcaaaaccaa cagagtctcc ccaccccgcg cctgatcaag tagtttggac ttcacccgac 1477  
 ggataacgcg cgcttgcagt tccctcgtag ttttctgcat aatgttcac acagttgcag 1537  
 gaagcagatt ttgcgtcgag atgactttat ttatggacct ttggaaggat cacctaacgt 1597  
 aatggacctt tgtaggaaca atttatgtac tgtaatttta ttttaatggt attttggatt 1657  
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 ctccccctcc tcgccaacaaa gaaaaagaaa aaaagaaaaa aaaaaagaaa actttatit 1777  
 cagaaacaga tttcttagta agccctgac ttggaagaga aaaagggaag ggggtggtgg 1837  
 aggggggcaa acatgaaaaa aaaatgggtt cagtattccc aggacattct cataaagtcg 1897

actctttcat tgtatttgaa gacgttgaaa ttaaattctg atattacttt cagttaa 1954

<210> 909

<211> 261

<212> PRT

<213> Mus musculus

<400> 909

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1 5 10 15

Lys Arg Ser Asp Gly Leu Leu Gln Leu Trp Lys Lys Lys Cys Cys Ile

20 25 30

Leu Thr Glu Glu Gly Leu Leu Leu Ile Pro Pro Lys Gln Leu Gln Gln

35 40 45

Gln Gln Gln Gln Gln Gln Pro Gly Gln Gly Thr Ala Glu Pro Ser Gln

50 55 60

Pro Ser Gly Pro Thr Val Ala Ser Leu Glu Pro Pro Val Lys Leu Lys

65 70 75 80

Glu Leu His Phe Ser Asn Met Lys Thr Val Asp Cys Val Glu Arg Lys

85 90 95

Gly Lys Tyr Met Tyr Phe Thr Val Val Met Thr Glu Gly Lys Glu Ile

100 105 110

Asp Phe Arg Cys Pro Gln Asp Gln Gly Trp Asn Ala Glu Ile Thr Leu

115 120 125

Gln Met Val Gln Tyr Lys Asn Arg Gln Ala Ile Leu Ala Val Lys Ser

130 135 140

Thr Arg Gln Lys Gln Gln His Leu Val Gln Gln Gln Pro Pro Gln Thr

145 150 155 160

Gln Gln Ile Gln Pro Gln Pro Gln Pro Gln Ile Gln Pro Gln Pro Gln

165 170 175  
 Pro Gln Ile Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln  
 180 185 190  
 Pro Gln Pro Gln Pro Gln Pro Gln Gln Leu His Ser Tyr Pro His Pro  
 195 200 205  
 His Pro His Pro Tyr Ser His Pro His Gln His Pro His Pro His Pro  
 210 215 220  
 His Pro His Pro His Pro His Pro His Pro Tyr Gln Leu Gln His Ala  
 225 230 235 240  
 His Gln Pro Leu His Ser Gln Pro Gln Gly His Arg Leu Leu Arg Ser  
 245 250 255  
 Thr Ser Asn Ser Ala  
 260

<210> 910

<211> 1238

<212> DNA

<213> Mus musculus.

<220>

<221> CDS

<222> (1).. (1017)

<400> 910

att gta aca gaa gaa gga aag gaa aag aaa gtt aac att gac ttt gaa 48  
 Ile Val Thr Glu Glu Gly Lys Glu Lys Lys Val Asn Ile Asp Phe Glu  
 1 5 10 15  
 cct ttc aaa cca att aat aca tca ttg tat ttg tgc gac aat aag ttt 96  
 Pro Phe Lys Pro Ile Asn Thr Ser Leu Tyr Leu Cys Asp Asn Lys Phe



|   |     |     |     |
|---|-----|-----|-----|
| 20  | 25  | 30  |     |
| cat aca gag gct ctt aca gcg tta ctt tca gat gac agc aag ttt ggt | 144 |     |     |
| His Thr Glu Ala Leu Thr Ala Leu Leu Ser Asp Asp Ser Lys Phe Gly |     |     |     |
| 35  | 40  | 45  |     |
| ttt att gta ata gac gga agt ggt gct ctt ttt ggc acg ctc caa gga | 192 |     |     |
| Phe Ile Val Ile Asp Gly Ser Gly Ala Leu Phe Gly Thr Leu Gln Gly |     |     |     |
| 50  | 55  | 60  |     |
| aac acc aga gaa gtc ctg cac aaa ttc act gtg gat ctc cca aag aaa | 240 |     |     |
| Asn Thr Arg Glu Val Leu His Lys Phe Thr Val Asp Leu Pro Lys Lys |     |     |     |
| 65  | 70  | 75  | 80  |
| cac ggc aga gga ggt caa tca gcc ttg cgt ttt gcc cgt tta aga atg | 288 |     |     |
| His Gly Arg Gly Gly Gln Ser Ala Leu Arg Phe Ala Arg Leu Arg Met |     |     |     |
| 85  | 90  | 95  |     |
| gaa aag aga cat aac tat gtt cgg aaa gta gcc gag act gct gtg cag | 336 |     |     |
| Glu Lys Arg His Asn Tyr Val Arg Lys Val Ala Glu Thr Ala Val Gln |     |     |     |
| 100   | 105 | 110 |     |
| ctg ttt att tct gga gac caa gtg aat gtg gct ggt ttg gtt tta gct | 384 |     |     |
| Leu Phe Ile Ser Gly Asp Gln Val Asn Val Ala Gly Leu Val Leu Ala |     |     |     |
| 115   | 120 | 125 |     |
| gga tca gct gac ttt aaa act gaa cta agt caa tct gac atg ttt gac | 432 |     |     |
| Gly Ser Ala Asp Phe Lys Thr Glu Leu Ser Gln Ser Asp Met Phe Asp |     |     |     |
| 130   | 135 | 140 |     |
| cag agg ttg caa tct aaa gtt tta aaa tta gtt gat ata tcc tat ggt | 480 |     |     |
| Gln Arg Leu Gln Ser Lys Val Leu Lys Leu Val Asp Ile Ser Tyr Gly |     |     |     |
| 145   | 150 | 155 | 160 |
| ggt gaa aat gga ttc aac caa gct att gaa tta tct act gaa gtt ctc | 528 |     |     |
| Gly Glu Asn Gly Phe Asn Gln Ala Ile Glu Leu Ser Thr Glu Val Leu |     |     |     |
| 165   | 170 | 175 |     |
| tcc aac gtg aag ttc att caa gag aag aaa tta ata gga cga tat ttt | 576 |     |     |

Ser Asn Val Lys Phe Ile Gln Glu Lys Lys Leu Ile Gly Arg Tyr Phe  
 180 185 190  
 gat gaa att agc cag gac aca ggc aag tac tgt ttt gga gtt gaa gat 624  
 Asp Glu Ile Ser Gln Asp Thr Gly Lys Tyr Cys Phe Gly Val Glu Asp  
 195 200 205  
 aca cta aag gct ttg gaa atg gga gct gta caa att cta ata gtc tat 672  
 Thr Leu Lys Ala Leu Glu Met Gly Ala Val Gln Ile Leu Ile Val Tyr  
 210 215 220  
 gaa aat ctg gat ata atg aga tac gtt ctt cat tgc caa ggc aca gaa 720  
 Glu Asn Leu Asp Ile Met Arg Tyr Val Leu His Cys Gln Gly Thr Glu  
 225 230 235 240  
 gag gag aaa att ctc tat tta act cca gaa caa gag aag gat aaa tct 768  
 Glu Glu Lys Ile Leu Tyr Leu Thr Pro Glu Gln Glu Lys Asp Lys Ser  
 245 250 255  
 cac ttc aca gac aaa gag act gga cag gaa cac gaa ctg ata gaa agc 816  
 His Phe Thr Asp Lys Glu Thr Gly Gln Glu His Glu Leu Ile Glu Ser  
 260 265 270  
 atg cct ctc ttg gaa tgg ttt gct aac aac tat aaa aaa ttt gga gct 864  
 Met Pro Leu Leu Glu Trp Phe Ala Asn Asn Tyr Lys Lys Phe Gly Ala  
 275 280 285  
 aca cta gaa att gtc aca gat aag tca caa gaa gga tca cag ttt gtg 912  
 Thr Leu Glu Ile Val Thr Asp Lys Ser Gln Glu Gly Ser Gln Phe Val  
 290 295 300  
 aaa gga ttt ggt gga att gga ggt atc ttg cgg tac cga gta gat ttc 960  
 Lys Gly Phe Gly Gly Ile Gly Gly Ile Leu Arg Tyr Arg Val Asp Phe  
 305 310 31  
 0  
 cag gga atg gag tac caa gga gga gat gat gaa ttt ttt gac ctt gat 1008  
 Gln Gly Met Glu Tyr Gln Gly Gly Asp Asp Glu Phe Phe Asp Leu Asp

325                      330                      335  
 gac tac tag gtagtcgaca tgggtccggc aaccgtgcct caccctccag 1057  
 Asp Tyr  
 cattcaaccc aaggagcata cccgtggtgg agtccaacag atccctgcct tacaattgga 1117  
 gcatttccag aacttaatcc gtgagcattg gatactgaaa agaaaagtga aacaaaacca 1177  
 gaccaaaccc tacactttgg ttgtcgtgg tgtcagcgca gcagccgaca actaagtctc 1237  
 t 1238

<210> 911

<211> 338

<212> PRT

<213> Mus musculus

<400> 911

Ile Val Thr Glu Glu Gly Lys Glu Lys Lys Val Asn Ile Asp Phe Glu  
 1                      5                      10                      15  
 Pro Phe Lys Pro Ile Asn Thr Ser Leu Tyr Leu Cys Asp Asn Lys Phe  
 20                      25                      30  
 His Thr Glu Ala Leu Thr Ala Leu Leu Ser Asp Asp Ser Lys Phe Gly  
 35                      40                      45  
 Phe Ile Val Ile Asp Gly Ser Gly Ala Leu Phe Gly Thr Leu Gln Gly  
 50                      55                      60  
 Asn Thr Arg Glu Val Leu His Lys Phe Thr Val Asp Leu Pro Lys Lys  
 65                      70                      75                      80  
 His Gly Arg Gly Gly Gln Ser Ala Leu Arg Phe Ala Arg Leu Arg Met  
 85                      90                      95  
 Glu Lys Arg His Asn Tyr Val Arg Lys Val Ala Glu Thr Ala Val Gln  
 100                      105                      110  
 Leu Phe Ile Ser Gly Asp Gln Val Asn Val Ala Gly Leu Val Leu Ala

|   |     |     |
|---|-----|-----|
| 115   | 120 | 125 |
| Gly Ser Ala Asp Phe Lys Thr Glu Leu Ser Gln Ser Asp Met Phe Asp |     |     |
| 130   | 135 | 140 |
| Gln Arg Leu Gln Ser Lys Val Leu Lys Leu Val Asp Ile Ser Tyr Gly |     |     |
| 145   | 150 | 155 |
| Gly Glu Asn Gly Phe Asn Gln Ala Ile Glu Leu Ser Thr Glu Val Leu |     | 160 |
| 165   | 170 | 175 |
| Ser Asn Val Lys Phe Ile Gln Glu Lys Lys Leu Ile Gly Arg Tyr Phe |     |     |
| 180   | 185 | 190 |
| Asp Glu Ile Ser Gln Asp Thr Gly Lys Tyr Cys Phe Gly Val Glu Asp |     |     |
| 195   | 200 | 205 |
| Thr Leu Lys Ala Leu Glu Met Gly Ala Val Gln Ile Leu Ile Val Tyr |     |     |
| 210   | 215 | 220 |
| Glu Asn Leu Asp Ile Met Arg Tyr Val Leu His Cys Gln Gly Thr Glu |     |     |
| 225   | 230 | 235 |
| Glu Glu Lys Ile Leu Tyr Leu Thr Pro Glu Gln Glu Lys Asp Lys Ser |     | 240 |
| 245   | 250 | 255 |
| His Phe Thr Asp Lys Glu Thr Gly Gln Glu His Glu Leu Ile Glu Ser |     |     |
| 260   | 265 | 270 |
| Met Pro Leu Leu Glu Trp Phe Ala Asn Asn Tyr Lys Lys Phe Gly Ala |     |     |
| 275   | 280 | 285 |
| Thr Leu Glu Ile Val Thr Asp Lys Ser Gln Glu Gly Ser Gln Phe Val |     |     |
| 290   | 295 | 300 |
| Lys Gly Phe Gly Gly Ile Gly Gly Ile Leu Arg Tyr Arg Val Asp Phe |     |     |
| 305   | 310 | 315 |
| Gln Gly Met Glu Tyr Gln Gly Gly Asp Asp Glu Phe Phe Asp Leu Asp |     | 320 |
| 325   | 330 | 335 |
| Asp Tyr   |     |     |

&lt;210&gt; 912

&lt;211&gt; 2953

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (222).. (2432)

&lt;400&gt; 912

gaattcggca cgagctcgac tgtgcggtct aggttttgag tctcgccaca cagctcttcc 60  
 cgatcagccc gcttggtcccc gccatcctcc ttgggcacgt cttccgcact ggccctgcgc 120  
 tgttggcgct agcgcgtcag tttgcgggtg tgcgcaggcg cggcgggggc gcttagtcct 180  
 gttgggtggg cggctgagcc cgggagcgcg cgagcgagac c atg gcg ggc agc agc 236

Met Ala Gly Ser Ser

1 5

gcg ggg ggc ggt ggt gta ggc gag acg aag gtg att tac cat ctg gat 284  
 Ala Gly Gly Gly Gly Val Gly Glu Thr Lys Val Ile Tyr His Leu Asp

10 15 20

gaa gaa gag act cct tac ctg gtg aag atc cct gtc ccg gcg gag cgc 332  
 Glu Glu Glu Thr Pro Tyr Leu Val Lys Ile Pro Val Pro Ala Glu Arg

25 30 35

atc acg ctc ggc gat ttc aag agc gtt ttg cag cgg ccc gcg ggc gcc 380  
 Ile Thr Leu Gly Asp Phe Lys Ser Val Leu Gln Arg Pro Ala Gly Ala

40 45 50

aag tac ttt ttc aag tcc atg gat cag gat ttt ggg gtg gtg aag gaa 428  
 Lys Tyr Phe Phe Lys Ser Met Asp Gln Asp Phe Gly Val Val Lys Glu

55 60 65

gag atc tcc gat gac aat gcc cgc cta cct tgc ttc aat gga agg gtt 476

2258/2644

2259/2644

|   |      |     |     |
|---|------|-----|-----|
| 375   | 380  | 385 |     |
| ttc cct gct tac cct ggc tcc tca tct atg agc act atc aca tct ggc | 1436 |     |     |
| Phe Pro Ala Tyr Pro Gly Ser Ser Ser Met Ser Thr Ile Thr Ser Gly |      |     |     |
| 390   | 395  | 400 | 405 |
| tcc tct ctg cct gat ggc tgc gaa ggc cgg ggt ctc tct gtc cac atg | 1484 |     |     |
| Ser Ser Leu Pro Asp Gly Cys Glu Gly Arg Gly Leu Ser Val His Met |      |     |     |
| 410   | 415  | 420 |     |
| gac atg gcc tct gtc acc aag gcc atg gca gcc cca gag tct ggg ctc | 1532 |     |     |
| Asp Met Ala Ser Val Thr Lys Ala Met Ala Ala Pro Glu Ser Gly Leu |      |     |     |
| 425   | 430  | 435 |     |
| gaa gtc cgg gac cgc atg tgg ctc aag atc acc atc cca aac gcc ttt | 1580 |     |     |
| Glu Val Arg Asp Arg Met Trp Leu Lys Ile Thr Ile Pro Asn Ala Phe |      |     |     |
| 440   | 445  | 450 |     |
| cta ggc tcc gat gtg gtg gac tgg ctg tac cat cac gtg gaa ggt ttt | 1628 |     |     |
| Leu Gly Ser Asp Val Val Asp Trp Leu Tyr His His Val Glu Gly Phe |      |     |     |
| 455   | 460  | 465 |     |
| cct gag cgc cgg gag gcc cgc aag tat gcc agt ggg ctg ttg aag gcg | 1676 |     |     |
| Pro Glu Arg Arg Glu Ala Arg Lys Tyr Ala Ser Gly Leu Leu Lys Ala |      |     |     |
| 470   | 475  | 480 | 485 |
| gga ctc atc cgg cac acc gtc aac aag att act ttc tct gag cag tgc | 1724 |     |     |
| Gly Leu Ile Arg His Thr Val Asn Lys Ile Thr Phe Ser Glu Gln Cys |      |     |     |
| 490   | 495  | 500 |     |
| tat tat gtc ttc ggg gac ctc agt ggt ggc tgt gag agt tac cta gtt | 1772 |     |     |
| Tyr Tyr Val Phe Gly Asp Leu Ser Gly Gly Cys Glu Ser Tyr Leu Val |      |     |     |
| 505   | 510  | 515 |     |
| aac ctc tct ctg aat gac aat gac ggt tcc agt ggg gct tca gac cag | 1820 |     |     |
| Asn Leu Ser Leu Asn Asp Asn Asp Gly Ser Ser Gly Ala Ser Asp Gln |      |     |     |
| 520   | 525  | 530 |     |
| gat acc ctg gca cct ctg cct gga gct act ccc tgg ccc ctg ctg ccc | 1868 |     |     |



Asp Thr Leu Ala Pro Leu Pro Gly Ala Thr Pro Trp Pro Leu Leu Pro  
 535 540 545  
 acc ttc tcc tac cag tat cca gcg cca cac ccc tac agc ccc cag cct 1916  
 Thr Phe Ser Tyr Gln Tyr Pro Ala Pro His Pro Tyr Ser Pro Gln Pro  
 550 555 560 565  
 cca ccc tac cac gag ctt tct tcg tac acc tat ggt gga ggc agt gcc 1964  
 Pro Pro Tyr His Glu Leu Ser Ser Tyr Thr Tyr Gly Gly Gly Ser Ala  
 570 575 580  
 agc agc cag cac agt gag ggg agc cgg agc agc ggg tcg aca aga agc 2012  
 Ser Ser Gln His Ser Glu Gly Ser Arg Ser Ser Gly Ser Thr Arg Ser  
 585 590 595  
 gat ggg ggg gct ggg cgc aca ggc agg cct gag gaa cgg gcc cct gag 2060  
 Asp Gly Gly Ala Gly Arg Thr Gly Arg Pro Glu Glu Arg Ala Pro Glu  
 600 605 610  
 tcc aag tcc ggc agt ggc agt gag tca gaa ctc tcc agc cgg gga ggc 2108  
 Ser Lys Ser Gly Ser Gly Ser Glu Ser Glu Leu Ser Ser Arg Gly Gly  
 615 620 625  
 agc ctt cgg cgg ggt ggg gag cct ggt ggg act ggt gat ggc ggc cct 2156  
 Ser Leu Arg Arg Gly Gly Glu Pro Gly Gly Thr Gly Asp Gly Gly Pro  
 630 635 640 645  
 cct cca tcc agg ggc tcg aca ggc gct cct cct aat ctc cga gct ctt 2204  
 Pro Pro Ser Arg Gly Ser Thr Gly Ala Pro Pro Asn Leu Arg Ala Leu  
 650 655 660  
 ccc ggg ctc cat ccc tat gga gcc cca tct ggc atg gct ctc ccc tat 2252  
 Pro Gly Leu His Pro Tyr Gly Ala Pro Ser Gly Met Ala Leu Pro Tyr  
 665 670 675  
 aac ccc atg atg gta gtt atg atg cct cca ccc cca ccc cct gtc tcc 2300  
 Asn Pro Met Met Val Val Met Met Pro Pro Pro Pro Pro Pro Val Ser  
 680 685 690

aca gca gtg cag ccc cct ggt gcc cct cca gtc aga gac ctg ggc tcc 2348  
 Thr Ala Val Gln Pro Pro Gly Ala Pro Pro Val Arg Asp Leu Gly Ser  
 695 700 705  
 gtg ccc cca gaa ctg aca gct agc cgt cag agc ttc cac atg gcc atg 2396  
 Val Pro Pro Glu Leu Thr Ala Ser Arg Gln Ser Phe His Met Ala Met  
 710 715 720 725  
 ggc aac ccc agt gag ttt ttt gtg gat gtt atg tag ggacccatct 2442  
 Gly Asn Pro Ser Glu Phe Phe Val Asp Val Met  
 730 735  
 tgaggccaca tigggtctgt gcccttggcc tggcaagttt cagcctgggt cccttcatag 2502  
 tgcctgggct cacgtggcgg ctggigccta ccaaaacgtt tttgccactg tgactctcac 2562  
 cagcagtgcc tggtccttcc cctcttccct cggggtaga tggggacctt tggttatitt 2622  
 tagctttatt ttttataagc tttttggggg gttaaaatag actttcttat atttggggga 2682  
 gtatittttt aaatagacag ttcctctttt atatggagaa tcccttctaa cccagaata 2742  
 tgaccgccac ctccaggtgc ctagtcagct ctcatgttga ggggtgggtgg tggtcagtgg 2802  
 taccctggga agaagaaggt gtgggctggg taccacagac agcagtccaa ggaggctggg 2862  
 ggtgtgttgg ggactgtgta gctgcctttg ttactctatt tatttttagtc acttgtacaa 2922  
 aacaccaaatt aaagcaaata gaggccaaaa a 2953

&lt;210&gt; 913

&lt;211&gt; 736

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 913

Met Ala Gly Ser Ser Ala Gly Gly Gly Gly Val Gly Glu Thr Lys Val  
 1 5 10 15  
 Ile Tyr His Leu Asp Glu Glu Glu Thr Pro Tyr Leu Val Lys Ile Pro  
 20 25 30

Val Pro Ala Glu Arg Ile Thr Leu Gly Asp Phe Lys Ser Val Leu Gln  
                   35                                  40                                  45  
 Arg Pro Ala Gly Ala Lys Tyr Phe Phe Lys Ser Met Asp Gln Asp Phe  
                   50                                  55                                  60  
 Gly Val Val Lys Glu Glu Ile Ser Asp Asp Asn Ala Arg Leu Pro Cys  
                   65                                  70                                  75                                  80  
 Phe Asn Gly Arg Val Val Ser Trp Leu Val Ser Ser Asp Thr Pro Gln  
                                   85                                  90                                  95  
 Pro Glu Val Ala Pro Pro Ala His Glu Ser Arg Thr Glu Leu Val Pro  
                                   100                                  105                                  110  
 Pro Pro Pro Pro Leu Pro Pro Leu Pro Pro Glu Arg Thr Ser Gly Ile  
                   115                                  120                                  125  
 Gly Asp Ser Arg Pro Pro Ser Phe His Pro Asn Val Ser Ser Ser His  
                   130                                  135                                  140  
 Glu Asn Leu Glu Pro Glu Thr Glu Thr Glu Ser Val Val Ser Leu Arg  
                   145                                  150                                  155                                  160  
 Arg Asp Arg Pro Arg Arg Arg Asp Ser Ser Glu His Gly Ala Gly Gly  
                                   165                                  170                                  175  
 His Arg Pro Gly Gly Pro Ser Arg Leu Glu Arg His Leu Ala Gly Tyr  
                                   180                                  185                                  190  
 Glu Ser Ser Ser Thr Leu Met Thr Ser Glu Leu Glu Ser Thr Ser Leu  
                   195                                  200                                  205  
 Gly Asp Ser Asp Glu Asp Asp Thr Met Ser Arg Phe Ser Ser Ser Thr  
                   210                                  215                                  220  
 Glu Gln Ser Ser Ala Ser Arg Leu Leu Lys Arg His Arg Arg Arg Arg  
                   225                                  230                                  235                                  240  
 Lys Gln Arg Pro Pro Arg Met Glu Arg Thr Ser Ser Phe Ser Ser Val  
                                   245                                  250                                  255  
 Thr Asp Ser Thr Met Ser Leu Asn Ile Ile Thr Val Thr Leu Asn Met

|   |     |     |
|---|-----|-----|
| 260   | 265 | 270 |
| Glu Lys Tyr Asn Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Glu |     |     |
| 275   | 280 | 285 |
| Arg Gly Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala |     |     |
| 290   | 295 | 300 |
| Val Ala Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val |     |     |
| 305   | 310 | 315 |
| Asn Asp Met Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val |     |     |
| 325   | 330 | 335 |
| Leu Arg Asp Ile Val His Lys Pro Gly Pro Ile Val Leu Thr Val Ala |     |     |
| 340   | 345 | 350 |
| Lys Cys Trp Gly Pro Ser Pro Gln Ala Tyr Phe Thr Leu Pro Arg Asn |     |     |
| 355   | 360 | 365 |
| Glu Pro Ile Gln Pro Ile Asp Pro Ala Ala Trp Val Ser His Ser Ala |     |     |
| 370   | 375 | 380 |
| Ala Leu Thr Gly Ala Phe Pro Ala Tyr Pro Gly Ser Ser Ser Met Ser |     |     |
| 385   | 390 | 395 |
| Thr Ile Thr Ser Gly Ser Ser Leu Pro Asp Gly Cys Glu Gly Arg Gly |     |     |
| 405   | 410 | 415 |
| Leu Ser Val His Met Asp Met Ala Ser Val Thr Lys Ala Met Ala Ala |     |     |
| 420   | 425 | 430 |
| Pro Glu Ser Gly Leu Glu Val Arg Asp Arg Met Trp Leu Lys Ile Thr |     |     |
| 435   | 440 | 445 |
| Ile Pro Asn Ala Phe Leu Gly Ser Asp Val Val Asp Trp Leu Tyr His |     |     |
| 450   | 455 | 460 |
| His Val Glu Gly Phe Pro Glu Arg Arg Glu Ala Arg Lys Tyr Ala Ser |     |     |
| 465   | 470 | 475 |
| Gly Leu Leu Lys Ala Gly Leu Ile Arg His Thr Val Asn Lys Ile Thr |     |     |
| 485   | 490 | 495 |

Phe Ser Glu Gln Cys Tyr Tyr Val Phe Gly Asp Leu Ser Gly Gly Cys  
                   500                  505                  510  
 Glu Ser Tyr Leu Val Asn Leu Ser Leu Asn Asp Asn Asp Gly Ser Ser  
                   515                  520                  525  
 Gly Ala Ser Asp Gln Asp Thr Leu Ala Pro Leu Pro Gly Ala Thr Pro  
                   530                  535                  540  
 Trp Pro Leu Leu Pro Thr Phe Ser Tyr Gln Tyr Pro Ala Pro His Pro  
 545                  550                  555                  560  
 Tyr Ser Pro Gln Pro Pro Pro Tyr His Glu Leu Ser Ser Tyr Thr Tyr  
                   565                  570                  575  
 Gly Gly Gly Ser Ala Ser Ser Gln His Ser Glu Gly Ser Arg Ser Ser  
                   580                  585                  590  
 Gly Ser Thr Arg Ser Asp Gly Gly Ala Gly Arg Thr Gly Arg Pro Glu  
                   595                  600                  605  
 Glu Arg Ala Pro Glu Ser Lys Ser Gly Ser Gly Ser Glu Ser Glu Leu  
                   610                  615                  620  
 Ser Ser Arg Gly Gly Ser Leu Arg Arg Gly Gly Glu Pro Gly Gly Thr  
 625                  630                  635                  640  
 Gly Asp Gly Gly Pro Pro Pro Ser Arg Gly Ser Thr Gly Ala Pro Pro  
                   645                  650                  655  
 Asn Leu Arg Ala Leu Pro Gly Leu His Pro Tyr Gly Ala Pro Ser Gly  
                   660                  665                  670  
 Met Ala Leu Pro Tyr Asn Pro Met Met Val Val Met Met Pro Pro Pro  
                   675                  680                  685  
 Pro Pro Pro Val Ser Thr Ala Val Gln Pro Pro Gly Ala Pro Pro Val  
                   690                  695                  700  
 Arg Asp Leu Gly Ser Val Pro Pro Glu Leu Thr Ala Ser Arg Gln Ser  
 705                  710                  715                  720  
 Phe His Met Ala Met Gly Asn Pro Ser Glu Phe Phe Val Asp Val Met

725

730

735

&lt;210&gt; 914

&lt;211&gt; 551

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 914

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 agggatatccg gaggattggt gctgtcacag gtgtcgaagc ccagaaggct ctcaggaagt 120  
 cagaaacctt gaagaaatct ctctctgcc tggaggccaa agtgaaggcc cagactgcac 180  
 ccaacaagga cgtgcagagg gaaattgctg acctcgggtga ggccctggcc actgcagtca 240  
 tccccagtg gcagaaagat gaacaacgag agactctgaa gtccctgaag aaagtcaitg 300  
 atgacctaga ccgggccagc aaagccgatg tgcagaagcg agtggttagag aagacaaagc 360  
 agctgattga cagcaacccc aaccagccgc tggctatcct ggagatggag agtggagcat 420  
 cggccaaggc cctgaatgaa gcgttgaagc ttttcaagac gcattctcct tagacatctg 480  
 ccatgctggt cacggtggac aattaagctt gcaagattca ctggcttttc caggtttccc 540  
 agaatgcagc a

551

&lt;210&gt; 915

&lt;211&gt; 388

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 915

naaaccggac gtcacagtca gtagtggttg tggctgtaag gaacagattg agagattgcg 60  
 agaagtagtt gaaacccctc tgctcgatcc agagagggtt tgttaacctt ggaatcgagc 120  
 gtccaaaggg gtgtactgct gtttgggcca ccaggcacia ggcaagacia ctctgtgcct 180  
 aggaagtigc caatcggact gatgcttgct tcaatcgagt tattgggtct gagctcgtac 240

agaaatacgt cggcgaggga actcgaatgt ttcgtgaggc ttttgaaatg gcaggacaaa 300  
 aaaagcctgc gctatttcct tgatgaaatg atgccatgga aggggtccgt tgacgattgc 360  
 gctgggggtga caatgagatgc agagaaca 388

<210> 916

<211> 1045

<212> DNA

<213> Mus musculus

<400> 916

agaacatggc gcaggacaaa cgcaagtcc aggcgcagaa acctaaaagc aaggctgccg 60  
 cggcggacga gccgcggcct cggaaaggcg gtcgagtcac cgctcccaag aaggcgcgcg 120  
 ttgttcagca gcagaagttg aagaagagcc tgggaagtggg aatccggaag aagattgagc 180  
 atgacgtggt aatgaaggcc agctccagcc tgcctaagag gcttgactg ctgaaggag 240  
 catcaaagaa atcagaagcc accatccctg gcaagacacc atcctgaagg cactgggact 300  
 ttgctgggtca cccacaggct ggctggactt ggaagaggcg cctgctcagt cctgggtggc 360  
 ctggaacgat tgggcagtga ttgtaagcca ggctagctcc aagggtgaa ggggtgctcag 420  
 ctcgtctctt gtgtgatgat aattgtgctc cgatgtctct cagcgtcatt ggcatatcta 480  
 cccaagtctt ggtccaacca gcaattatgc agctgctaac attatcaagc attgggtacc 540  
 atgttccata aagtgtgccg ggaaaaagaa aaaaatgggg gagttatcct aggtagtaat 600  
 accttgaagc gcgttaactg taatgacact ggctgattat cttcgatcgt tcaatgtata 660  
 gaactcacgt ctctaattca tatgatcgg ttacatacgg gtttggtcga cgtaatacct 720  
 cgggttcgtc ttttcgggtgc tcaaaaggct tgtctttttt ccccaaattt ggggggtgtgc 780  
 cgggaagggtc gtggtattct agacacgttg ttctgggaaa aaaaagaaag ggggtatatt 840  
 aaaaaacttc agcgggcccc cggacgagan nnnnnnnnnn nnnnngngn ngnngngggg 900  
 gggggggggg gggggggggg gggggggggg gggggggggg gggngggggg gggggggggg 960  
 gggggggggg gggggggggg gggggggggg gggggggggg gggggggggg gggggggggg 1020  
 gngggngggg gggggggggg ggggt 1045

&lt;210&gt; 917

&lt;211&gt; 2702

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (98).. (2443)

&lt;400&gt; 917

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gaattccgag cgtcagtga ggaggccgat tccgagcggg cggccgcgag gtaggtgaag 60
ctcagcgcag agctgctgtg acaccgctgc gtggaca atg gct act caa gct gac 115
                                Met Ala Thr Gln Ala Asp
                                1           5
ctg atg gag ttg gac atg gcc atg gag ccg gac aga aaa gct gct gtc 163
Leu Met Glu Leu Asp Met Ala Met Glu Pro Asp Arg Lys Ala Ala Val
                10           15           20
agc cac tgg cag cag cag tct tac ttg gat tct gga atc cat tct ggt 211
Ser His Trp Gln Gln Gln Ser Tyr Leu Asp Ser Gly Ile His Ser Gly
                25           30           35
gcc acc acc aca gct cct tcc ctg agt ggc aag ggc aac cct gag gaa 259
Ala Thr Thr Thr Ala Pro Ser Leu Ser Gly Lys Gly Asn Pro Glu Glu
                40           45           50
gaa gat gtt gac acc tcc caa gtc ctt tat gaa tgg gag caa ggc ttt 307
Glu Asp Val Asp Thr Ser Gln Val Leu Tyr Glu Trp Glu Gln Gly Phe
                55           60           65           70
tcc cag tcc ttc acg caa gag caa gta gct gat att gac ggg cag tat 355
Ser Gln Ser Phe Thr Gln Glu Gln Val Ala Asp Ile Asp Gly Gln Tyr
                75           80           85

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gca atg act agg gct cag agg gtc cga gct gcc atg ttc cct gag acg 403  
 Ala Met Thr Arg Ala Gln Arg Val Arg Ala Ala Met Phe Pro Glu Thr  
                   90                                  95                                  100  
 cta gat gag ggc atg cag atc cca tcc acg cag ttt gac gct gct cat 451  
 Leu Asp Glu Gly Met Gln Ile Pro Ser Thr Gln Phe Asp Ala Ala His  
                   105                                  110                                  115  
 ccc act aat gtc cag cgc ttg gct gaa cca tca cag atg ttg aaa cat 499  
 Pro Thr Asn Val Gln Arg Leu Ala Glu Pro Ser Gln Met Leu Lys His  
                   120                                  125                                  130  
 gca gtt gtc aat ttg att aac tat cag gat gac gcg gaa ctt gcc aca 547  
 Ala Val Val Asn Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr  
 135                                  140                                  145                                  150  
 cgt gca att cct gag ctg aca aaa ctg cta aac gat gag gac cag gtg 595  
 Arg Ala Ile Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Gln Val  
                                   155                                  160                                  165  
 gta gtt aat aaa gct gct gtt atg gtc cat cag ctt tcc aaa aag gaa 643  
 Val Val Asn Lys Ala Ala Val Met Val His Gln Leu Ser Lys Lys Glu  
                                   170                                  175                                  180  
 gct tcc aga cat gcc atc atg cgc tcc cct cag atg gtg tct gcc att 691  
 Ala Ser Arg His Ala Ile Met Arg Ser Pro Gln Met Val Ser Ala Ile  
                   185                                  190                                  195  
 gta cgc acc atg cag aat aca aat gat gta gag aca gct cgt tgt act 739  
 Val Arg Thr Met Gln Asn Thr Asn Asp Val Glu Thr Ala Arg Cys Thr  
                   200                                  205                                  210  
 gct ggg acc ctt cac aac ctt tct cac cac cgc gag ggc ttg ctg gcc 787  
 Ala Gly Thr Leu His Asn Leu Ser His His Arg Glu Gly Leu Leu Ala  
 215                                  220                                  225                                  230  
 atc ttt aag tct ggt ggc atc cca gcg ctg gtg aaa atg ctt ggg tca 835  
 Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu Val Lys Met Leu Gly Ser

|   |     |     |      |
|---|-----|-----|------|
| 235   | 240 | 245 |      |
| cca gtg gat tct gta ctg ttc tac gcc atc acg aca ctg cat aat ctc |     |     | 883  |
| Pro Val Asp Ser Val Leu Phe Tyr Ala Ile Thr Thr Leu His Asn Leu |     |     |      |
| 250   | 255 | 260 |      |
| ctg ctc cat cag gaa gga gct aaa atg gca gtg cgc cta gct ggt gga |     |     | 931  |
| Leu Leu His Gln Glu Gly Ala Lys Met Ala Val Arg Leu Ala Gly Gly |     |     |      |
| 265   | 270 | 275 |      |
| ctg cag aaa atg gtt gct ttg ctc aac aaa aca aac gtg aaa ttc ttg |     |     | 979  |
| Leu Gln Lys Met Val Ala Leu Leu Asn Lys Thr Asn Val Lys Phe Leu |     |     |      |
| 280   | 285 | 290 |      |
| gct att aca aca gac tgc ctt cag atc tta gct tat ggc aat caa gag |     |     | 1027 |
| Ala Ile Thr Thr Asp Cys Leu Gln Ile Leu Ala Tyr Gly Asn Gln Glu |     |     |      |
| 295   | 300 | 305 | 310  |
| agc aag ctc atc att ctg gcc agt ggt gga ccc caa gcc tta gta aac |     |     | 1075 |
| Ser Lys Leu Ile Ile Leu Ala Ser Gly Gly Pro Gln Ala Leu Val Asn |     |     |      |
| 315   | 320 | 325 |      |
| ata atg agg acc tac act tat gag aag ctt ctg tgg acc aca agc aga |     |     | 1123 |
| Ile Met Arg Thr Tyr Thr Tyr Glu Lys Leu Leu Trp Thr Thr Ser Arg |     |     |      |
| 330   | 335 | 340 |      |
| gtg ctg aaa gtg ctg tct gtc tgc tct agc aac aag ccg gcc att gta |     |     | 1171 |
| Val Leu Lys Val Leu Ser Val Cys Ser Ser Asn Lys Pro Ala Ile Val |     |     |      |
| 345   | 350 | 355 |      |
| gaa gct ggt ggg atg cag gca ctg ggg ctt cat ctg aca gac cca agt |     |     | 1219 |
| Glu Ala Gly Gly Met Gln Ala Leu Gly Leu His Leu Thr Asp Pro Ser |     |     |      |
| 360   | 365 | 370 |      |
| cag cga ctt gtt caa aac tgt ctt tgg act ctc aga aac ctt tca gat |     |     | 1267 |
| Gln Arg Leu Val Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp |     |     |      |
| 375   | 380 | 385 | 390  |
| gca gcg act aag cag gaa ggg atg gaa ggc ctc ctt ggg act cta gtg |     |     | 1315 |

|   |      |
|---|------|
| Ala Ala Thr Lys Gln Glu Gly Met Glu Gly Leu Leu Gly Thr Leu Val |      |
| 395   | 400  |
| cag ctt ctg ggt tcc gat gat ata aat gtg gtc acc tgt gca gct gga | 1363 |
| Gln Leu Leu Gly Ser Asp Asp Ile Asn Val Val Thr Cys Ala Ala Gly |      |
| 410   | 415  |
| att ctc tct aac ctc act tgc aat aat tac aaa aac aag atg atg gtg | 1411 |
| Ile Leu Ser Asn Leu Thr Cys Asn Asn Tyr Lys Asn Lys Met Met Val |      |
| 425   | 430  |
| tgc caa gtg ggt ggc ata gag gct ctt gta cgc acc gtc ctt cgt gct | 1459 |
| Cys Gln Val Gly Gly Ile Glu Ala Leu Val Arg Thr Val Leu Arg Ala |      |
| 440   | 445  |
| ggt gac agg gaa gac atc act gag cct gcc atc tgt gct ctt cgt cat | 1507 |
| Gly Asp Arg Glu Asp Ile Thr Glu Pro Ala Ile Cys Ala Leu Arg His |      |
| 455   | 460  |
| ctg acc agc cgg cat cag gaa gcc gag atg gcc cag aat gcc gtt cgc | 1555 |
| Leu Thr Ser Arg His Gln Glu Ala Glu Met Ala Gln Asn Ala Val Arg |      |
| 475   | 480  |
| ctt cat tat gga ctg cct gtt gtg gtt aaa ctc ctg cac cca cca tcc | 1603 |
| Leu His Tyr Gly Leu Pro Val Val Val Lys Leu Leu His Pro Pro Ser |      |
| 490   | 495  |
| cac tgg cct ctg ata aag gca act gtt gga ttg att cga aac ctt gcc | 1651 |
| His Trp Pro Leu Ile Lys Ala Thr Val Gly Leu Ile Arg Asn Leu Ala |      |
| 505   | 510  |
| ctt tgc cca gca aat cat gcg cct ttg cgg gaa cag ggt gct att cca | 1699 |
| Leu Cys Pro Ala Asn His Ala Pro Leu Arg Glu Gln Gly Ala Ile Pro |      |
| 520   | 525  |
| cga cta gtt cag ctg ctt gta cga gca cat cag gac acc caa cgg cgc | 1747 |
| Arg Leu Val Gln Leu Leu Val Arg Ala His Gln Asp Thr Gln Arg Arg |      |
| 535   | 540  |
|   | 545  |
|   | 550  |

acc tcc atg ggt gga acg cag cag cag ttt gtg gag ggc gtg cgc atg 1795  
 Thr Ser Met Gly Gly Thr Gln Gln Gln Phe Val Glu Gly Val Arg Met  
 555 560 565  
 gag gaa ata gtc gaa ggg tgt act gga gct ctc cac atc ctt gct cgg 1843  
 Glu Glu Ile Val Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg  
 570 575 580  
 gac gtt cac aac cgg att gta atc cga gga ctc aat acc att cca ttg 1891  
 Asp Val His Asn Arg Ile Val Ile Arg Gly Leu Asn Thr Ile Pro Leu  
 585 590 595  
 ttt gtg cag ttg ctt tat tct ccc att gaa aat atc caa aga gta gct 1939  
 Phe Val Gln Leu Leu Tyr Ser Pro Ile Glu Asn Ile Gln Arg Val Ala  
 600 605 610  
 gca ggg gtc ctc tgt gaa ctt gct cag gac aag gag gct gca gag gcc 1987  
 Ala Gly Val Leu Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Glu Ala  
 615 620 625 630  
 att gaa gct gag gga gcc aca gct ccc ctg aca gag tta ctc cac tcc 2035  
 Ile Glu Ala Glu Gly Ala Thr Ala Pro Leu Thr Glu Leu Leu His Ser  
 635 640 645  
 agg aat gaa ggc gtg gca aca tac gca gct gct gtc cta ttc cga atg 2083  
 Arg Asn Glu Gly Val Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Met  
 650 655 660  
 tct gag gac aag cca cag gat tac aag aag cgg ctt tca gtc gag ctg 2131  
 Ser Glu Asp Lys Pro Gln Asp Tyr Lys Lys Arg Leu Ser Val Glu Leu  
 665 670 675  
 acc agt tcc ctc ttc agg aca gag cca atg gct tgg aat gag act gca 2179  
 Thr Ser Ser Leu Phe Arg Thr Glu Pro Met Ala Trp Asn Glu Thr Ala  
 680 685 690  
 gat ctt gga ctg gac att ggt gcc cag gga gaa gcc ctt gga tat cgc 2227  
 Asp Leu Gly Leu Asp Ile Gly Ala Gln Gly Glu Ala Leu Gly Tyr Arg

|  |      |     |     |  |
|--|------|-----|-----|--|
| 695  | 700  | 705 | 710 |  |
| cag gat gat ccc agc tac cgt tct ttt cac tct ggt gga tac ggc cag    | 2275 |     |     |  |
| Gln Asp Asp Pro Ser Tyr Arg Ser Phe His Ser Gly Gly Tyr Gly Gln    |      |     |     |  |
|  | 715  | 720 | 725 |  |
| gat gcc ttg ggg atg gac cct atg atg gag cat gag atg ggt ggc cac    | 2323 |     |     |  |
| Asp Ala Leu Gly Met Asp Pro Met Met Glu His Glu Met Gly Gly His    |      |     |     |  |
|  | 730  | 735 | 740 |  |
| cac cct ggt gct gac tat cca gtt gat ggg ctg cct gat ctg gga cac    | 2371 |     |     |  |
| His Pro Gly Ala Asp Tyr Pro Val Asp Gly Leu Pro Asp Leu Gly His    |      |     |     |  |
|  | 745  | 750 | 755 |  |
| gcc cag gac ctc atg gat ggg ctg ccc cca ggt gat agc aat cag ctg    | 2419 |     |     |  |
| Ala Gln Asp Leu Met Asp Gly Leu Pro Pro Gly Asp Ser Asn Gln Leu    |      |     |     |  |
|  | 760  | 765 | 770 |  |
| gcc tgg ttt gat act gac ctg taa atcgtcctta gtaagaaagc ttataaaagc   | 2473 |     |     |  |
| Ala Trp Phe Asp Thr Asp Leu  |      |     |     |  |
| 775  | 780  |     |     |  |
| cagtgtgggt gaatacttac tctgcctgca gaactccaga aagacttggt aggggtgggaa | 2533 |     |     |  |
| tggttttagg cctgttttgta aatctgccac caaacagata cataccttgg aaggagatgt | 2593 |     |     |  |
| tcatgtgtgg aagttttctca cgttgatgtt ttgcccacag cttttgcagc gttatactca | 2653 |     |     |  |
| gatgagtaac atttgctgtt ttcaacatta atagcagcct tctctctat              | 2702 |     |     |  |

&lt;210&gt; 918

&lt;211&gt; 781

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 918

Met Ala Thr Gln Ala Asp Leu Met Glu Leu Asp Met Ala Met Glu Pro

1

5

10

15

Asp Arg Lys Ala Ala Val Ser His Trp Gln Gln Gln Ser Tyr Leu Asp  
 20 25 30  
 Ser Gly Ile His Ser Gly Ala Thr Thr Thr Ala Pro Ser Leu Ser Gly  
 35 40 45  
 Lys Gly Asn Pro Glu Glu Glu Asp Val Asp Thr Ser Gln Val Leu Tyr  
 50 55 60  
 Glu Trp Glu Gln Gly Phe Ser Gln Ser Phe Thr Gln Glu Gln Val Ala  
 65 70 75 80  
 Asp Ile Asp Gly Gln Tyr Ala Met Thr Arg Ala Gln Arg Val Arg Ala  
 85 90 95  
 Ala Met Phe Pro Glu Thr Leu Asp Glu Gly Met Gln Ile Pro Ser Thr  
 100 105 110  
 Gln Phe Asp Ala Ala His Pro Thr Asn Val Gln Arg Leu Ala Glu Pro  
 115 120 125  
 Ser Gln Met Leu Lys His Ala Val Val Asn Leu Ile Asn Tyr Gln Asp  
 130 135 140  
 Asp Ala Glu Leu Ala Thr Arg Ala Ile Pro Glu Leu Thr Lys Leu Leu  
 145 150 155 160  
 Asn Asp Glu Asp Gln Val Val Val Asn Lys Ala Ala Val Met Val His  
 165 170 175  
 Gln Leu Ser Lys Lys Glu Ala Ser Arg His Ala Ile Met Arg Ser Pro  
 180 185 190  
 Gln Met Val Ser Ala Ile Val Arg Thr Met Gln Asn Thr Asn Asp Val  
 195 200 205  
 Glu Thr Ala Arg Cys Thr Ala Gly Thr Leu His Asn Leu Ser His His  
 210 215 220  
 Arg Glu Gly Leu Leu Ala Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu  
 225 230 235 240  
 Val Lys Met Leu Gly Ser Pro Val Asp Ser Val Leu Phe Tyr Ala Ile

|   |     |     |     |
|---|-----|-----|-----|
|   | 245 | 250 | 255 |
| Thr Thr Leu His Asn Leu Leu Leu His Gln Glu Gly Ala Lys Met Ala |     |     |     |
|   | 260 | 265 | 270 |
| Val Arg Leu Ala Gly Gly Leu Gln Lys Met Val Ala Leu Leu Asn Lys |     |     |     |
|   | 275 | 280 | 285 |
| Thr Asn Val Lys Phe Leu Ala Ile Thr Thr Asp Cys Leu Gln Ile Leu |     |     |     |
|   | 290 | 295 | 300 |
| Ala Tyr Gly Asn Gln Glu Ser Lys Leu Ile Ile Leu Ala Ser Gly Gly |     |     |     |
| 305   | 310 | 315 | 320 |
| Pro Gln Ala Leu Val Asn Ile Met Arg Thr Tyr Thr Tyr Glu Lys Leu |     |     |     |
|   | 325 | 330 | 335 |
| Leu Trp Thr Thr Ser Arg Val Leu Lys Val Leu Ser Val Cys Ser Ser |     |     |     |
|   | 340 | 345 | 350 |
| Asn Lys Pro Ala Ile Val Glu Ala Gly Gly Met Gln Ala Leu Gly Leu |     |     |     |
|   | 355 | 360 | 365 |
| His Leu Thr Asp Pro Ser Gln Arg Leu Val Gln Asn Cys Leu Trp Thr |     |     |     |
|   | 370 | 375 | 380 |
| Leu Arg Asn Leu Ser Asp Ala Ala Thr Lys Gln Glu Gly Met Glu Gly |     |     |     |
| 385   | 390 | 395 | 400 |
| Leu Leu Gly Thr Leu Val Gln Leu Leu Gly Ser Asp Asp Ile Asn Val |     |     |     |
|   | 405 | 410 | 415 |
| Val Thr Cys Ala Ala Gly Ile Leu Ser Asn Leu Thr Cys Asn Asn Tyr |     |     |     |
|   | 420 | 425 | 430 |
| Lys Asn Lys Met Met Val Cys Gln Val Gly Gly Ile Glu Ala Leu Val |     |     |     |
|   | 435 | 440 | 445 |
| Arg Thr Val Leu Arg Ala Gly Asp Arg Glu Asp Ile Thr Glu Pro Ala |     |     |     |
|   | 450 | 455 | 460 |
| Ile Cys Ala Leu Arg His Leu Thr Ser Arg His Gln Glu Ala Glu Met |     |     |     |
| 465   | 470 | 475 | 480 |

Ala Gln Asn Ala Val Arg Leu His Tyr Gly Leu Pro Val Val Val Lys  
                     485                    490                    495  
 Leu Leu His Pro Pro Ser His Trp Pro Leu Ile Lys Ala Thr Val Gly  
                     500                    505                    510  
 Leu Ile Arg Asn Leu Ala Leu Cys Pro Ala Asn His Ala Pro Leu Arg  
                     515                    520                    525  
 Glu Gln Gly Ala Ile Pro Arg Leu Val Gln Leu Leu Val Arg Ala His  
                     530                    535                    540  
 Gln Asp Thr Gln Arg Arg Thr Ser Met Gly Gly Thr Gln Gln Gln Phe  
 545                    550                    555                    560  
 Val Glu Gly Val Arg Met Glu Glu Ile Val Glu Gly Cys Thr Gly Ala  
                     565                    570                    575  
 Leu His Ile Leu Ala Arg Asp Val His Asn Arg Ile Val Ile Arg Gly  
                     580                    585                    590  
 Leu Asn Thr Ile Pro Leu Phe Val Gln Leu Leu Tyr Ser Pro Ile Glu  
                     595                    600                    605  
 Asn Ile Gln Arg Val Ala Ala Gly Val Leu Cys Glu Leu Ala Gln Asp  
                     610                    615                    620  
 Lys Glu Ala Ala Glu Ala Ile Glu Ala Glu Gly Ala Thr Ala Pro Leu  
 625                    630                    635                    640  
 Thr Glu Leu Leu His Ser Arg Asn Glu Gly Val Ala Thr Tyr Ala Ala  
                     645                    650                    655  
 Ala Val Leu Phe Arg Met Ser Glu Asp Lys Pro Gln Asp Tyr Lys Lys  
                     660                    665                    670  
 Arg Leu Ser Val Glu Leu Thr Ser Ser Leu Phe Arg Thr Glu Pro Met  
                     675                    680                    685  
 Ala Trp Asn Glu Thr Ala Asp Leu Gly Leu Asp Ile Gly Ala Gln Gly  
                     690                    695                    700  
 Glu Ala Leu Gly Tyr Arg Gln Asp Asp Pro Ser Tyr Arg Ser Phe His



705                      710                      715                      720  
 Ser Gly Gly Tyr Gly Gln Asp Ala Leu Gly Met Asp Pro Met Met Glu  
                          725                      730                      735  
 His Glu Met Gly Gly His His Pro Gly Ala Asp Tyr Pro Val Asp Gly  
                          740                      745                      750  
 Leu Pro Asp Leu Gly His Ala Gln Asp Leu Met Asp Gly Leu Pro Pro  
                          755                      760                      765  
 Gly Asp Ser Asn Gln Leu Ala Trp Phe Asp Thr Asp Leu  
                          770                      775                      780

<210> 919

<211> 600

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (69).. (362)

<400> 919

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                  Met Pro Ser Gln Met Glu His Ala Met Glu Thr Met Met Leu  
                          1                      5                      10  
 acg ttt cac agg ttt gca ggc gac aaa gac cac ttg aca aag gag gac 158  
 Thr Phe His Arg Phe Ala Gly Asp Lys Asp His Leu Thr Lys Glu Asp  
                  15                      20                      25                      30  
 ctg aga gtg ctc atg gaa cgg gag ttc cct ggg ttt ttg gaa aat caa 206  
 Leu Arg Val Leu Met Glu Arg Glu Phe Pro Gly Phe Leu Glu Asn Gln

|  |    |    |     |
|--|----|----|-----|
| 35   | 40 | 45 |     |
| aag gat cct ctg gct gtg gac aaa ata atg aag gac ctg gac cag tgc    |    |    | 254 |
| Lys Asp Pro Leu Ala Val Asp Lys Ile Met Lys Asp Leu Asp Gln Cys    |    |    |     |
| 50   | 55 | 60 |     |
| cga gat ggc aaa gtg ggc ttc cag agc ttt cta tca cta gtg gcg ggg    |    |    | 302 |
| Arg Asp Gly Lys Val Gly Phe Gln Ser Phe Leu Ser Leu Val Ala Gly    |    |    |     |
| 65   | 70 | 75 |     |
| ctc acc att gca tgc aat gac tat ttt gta gta aac atg aag cag aag    |    |    | 350 |
| Leu Thr Ile Ala Cys Asn Asp Tyr Phe Val Val Asn Met Lys Gln Lys    |    |    |     |
| 80   | 85 | 90 |     |
| ggg aag aaa tag gccaaactgga gcactgggtac cccacccctg gtgcgtgttc      |    |    | 402 |
| Gly Lys Lys  |    |    |     |
| 95   |    |    |     |
| accacggggt cacttgagga atctgccccca ctgcttcttg tgagcagatc aggaccctta |    |    | 462 |
| ggaaatgtgc aaatgagatc caactccaat tcaacaatct gagagagaaa acttaatcca  |    |    | 522 |
| atggcagaga agcttctgag ttttatattg tttgcatccc attgccctca ataaagaaag  |    |    | 582 |
| tccttttttt aagttctg  |    |    | 600 |

&lt;210&gt; 920

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 920

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ser | Gln | Met | Glu | His | Ala | Met | Glu | Thr | Met | Met | Leu | Thr | Phe |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| His | Arg | Phe | Ala | Gly | Asp | Lys | Asp | His | Leu | Thr | Lys | Glu | Asp | Leu | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Leu | Met | Glu | Arg | Glu | Phe | Pro | Gly | Phe | Leu | Glu | Asn | Gln | Lys | Asp |

35                      40                      45  
 Pro Leu Ala Val Asp Lys Ile Met Lys Asp Leu Asp Gln Cys Arg Asp  
 50                      55                      60  
 Gly Lys Val Gly Phe Gln Ser Phe Leu Ser Leu Val Ala Gly Leu Thr  
 65                      70                      75                      80  
 Ile Ala Cys Asn Asp Tyr Phe Val Val Asn Met Lys Gln Lys Gly Lys  
 85                      90                      95  
 Lys

<210> 921

<211> 439

<212> DNA

<213> Mus musculus

<400> 921

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 gcgcaggctg tactattgtc actgcactgc tgtccctggc tctgggccag ccagtgttgc 180  
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 agaacagaaa ggactactcg gatttagctc cttttatcac agagggcctt gaagttcact 360  
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 ggcgtaggaga gatgacaca 439

<210> 922

<211> 1045

<212> DNA

<213> Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1).. (675)

&lt;400&gt; 922

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| Glu Lys Ala Leu Leu Lys Leu Gln Glu Phe Phe Pro Asp Met Gln Ile |     |
| 1 5 10 15   |     |
| ctg gca gtc agt ggg aac tat tgc acc gac aag aag cct gct gcc ata | 96  |
| Leu Ala Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala Ile |     |
| 20 25 30  |     |
| aat tgg atc gaa gga cga gga aag act gtg gtt tgt gaa gcc gtc att | 144 |
| Asn Trp Ile Glu Gly Arg Gly Lys Thr Val Val Cys Glu Ala Val Ile |     |
| 35 40 45  |     |
| cca gcc aag gtg gtg aga gag gtg tta aag aca act acg gaa gct atg | 192 |
| Pro Ala Lys Val Val Arg Glu Val Leu Lys Thr Thr Thr Glu Ala Met |     |
| 50 55 60  |     |
| gtt gac gta aac att aac aag aat ctt gtg ggc tcg gcc atg gct ggg | 240 |
| Val Asp Val Asn Ile Asn Lys Asn Leu Val Gly Ser Ala Met Ala Gly |     |
| 65 70 75 80   |     |
| agc ata ggc ggc tac aac gcc cac gca gca aac att gtc act gct atc | 288 |
| Ser Ile Gly Gly Tyr Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile |     |
| 85 90 95  |     |
| tac atc gca tgt ggc cag gat gca gca cag aat gtg ggg agt tca aac | 336 |
| Tyr Ile Ala Cys Gly Gln Asp Ala Ala Gln Asn Val Gly Ser Ser Asn |     |
| 100 105 110   |     |
| tgt att act tta atg gaa gcc agt ggt ccc aca aat gaa gac tta tat | 384 |
| Cys Ile Thr Leu Met Glu Ala Ser Gly Pro Thr Asn Glu Asp Leu Tyr |     |
| 115 120 125   |     |

atc agc tgc acc atg cca tcg ata gag ata gga acc gtg ggt ggt ggg 432  
 Ile Ser Cys Thr Met Pro Ser Ile Glu Ile Gly Thr Val Gly Gly Gly  
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 Thr Asn Leu Leu Pro Gln Gln Ala Cys Leu Gln Met Leu Gly Val Gln  
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 Gly Ala Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg Gln Leu Ala Arg  
 165 170 175  
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 Ile Val Cys Gly Thr Val Met Ala Gly Glu Leu Ser Leu Met Ala Ala  
 180 185 190  
 ttg gca gca gga cat ctt gtc aga agt cac atg gtt cac aac aga tca 624  
 Leu Ala Ala Gly His Leu Val Arg Ser His Met Val His Asn Arg Ser  
 195 200 205  
 aag ata aat tta caa gat ctt caa gga acg tgc acc aag aag gca gct 672  
 Lys Ile Asn Leu Gln Asp Leu Gln Gly Thr Cys Thr Lys Lys Ala Ala  
 210 215 220  
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&lt;210&gt; 923

&lt;211&gt; 224

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 923

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 Leu Ala Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala Ile  
 20 25 30  
 Asn Trp Ile Glu Gly Arg Gly Lys Thr Val Val Cys Glu Ala Val Ile  
 35 40 45  
 Pro Ala Lys Val Val Arg Glu Val Leu Lys Thr Thr Thr Glu Ala Met  
 50 55 60  
 Val Asp Val Asn Ile Asn Lys Asn Leu Val Gly Ser Ala Met Ala Gly  
 65 70 75 80  
 Ser Ile Gly Gly Tyr Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile  
 85 90 95  
 Tyr Ile Ala Cys Gly Gln Asp Ala Ala Gln Asn Val Gly Ser Ser Asn  
 100 105 110  
 Cys Ile Thr Leu Met Glu Ala Ser Gly Pro Thr Asn Glu Asp Leu Tyr  
 115 120 125  
 Ile Ser Cys Thr Met Pro Ser Ile Glu Ile Gly Thr Val Gly Gly Gly  
 130 135 140  
 Thr Asn Leu Leu Pro Gln Gln Ala Cys Leu Gln Met Leu Gly Val Gln  
 145 150 155 160  
 Gly Ala Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg Gln Leu Ala Arg  
 165 170 175  
 Ile Val Cys Gly Thr Val Met Ala Gly Glu Leu Ser Leu Met Ala Ala  
 180 185 190  
 Leu Ala Ala Gly His Leu Val Arg Ser His Met Val His Asn Arg Ser

|   |     |     |
|---|-----|-----|
| 195   | 200 | 205 |
| Lys Ile Asn Leu Gln Asp Leu Gln Gly Thr Cys Thr Lys Lys Ala Ala |     |     |
| 210   | 215 | 220 |

&lt;210&gt; 924

&lt;211&gt; 4270

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 924

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<210> 925

<211> 1033

<212> DNA

<213> Mus musculus

&lt;400&gt; 925

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 tttggggccc ttttggagct ggattaaaggc ggttttaaaa cccgcgtttt tataataccc 840  
 ccgcctgtag aatttttgcg gcctgacgat tttagggtga aaatacgatc ttgttggagg 900  
 aaaagttttt ttctttgggc cgcaaaaaaa aaattgttgg gtgggggggg tgtgtttaat 960  
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1033

&lt;210&gt; 926

&lt;211&gt; 355

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 926

cagggcgana cagtcagga cacgaaggca cctggctgag ttcactcacg tggaagctga 60  
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ggtaggacaga gtcctgaagt caccagtggc aagcatagta tgagctcaac ccgaacttta 180  
 aaccccccaa gcggcctttc cgcaggatga actactcgga tgctattgag tggctgaagg 240  
 agcatgatgt caagaaagaa gacgggactt tctacgagtt tggagatgat attcccgaag 300  
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<210> 927

<211> 2495

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (150).. (1103)

<400> 927

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 ggccgcccc ggctcggggc tgtgaggccc tcggcgccgg ggtgcgcggc ggcgcgcgcg 120  
 gcggcgggacg ctccctgctcg gcggcgggcc atg cgc gcg ggc cgg ggc ggc gtc 173

Met Arg Ala Gly Arg Gly Gly Val

1

5

ccg ggg agc ggc ggc ctg agg gcc ccg ccg ccg ctg ctg ctg ctg ctg 221

Pro Gly Ser Gly Gly Leu Arg Ala Pro Pro Pro Leu Leu Leu Leu Leu

10

15

20

ctg gcg atg ctg ccc gcc gcc gcc ccg cgg tcc ccg gcc ctg gcc gcc 269

Leu Ala Met Leu Pro Ala Ala Ala Pro Arg Ser Pro Ala Leu Ala Ala

25

30

35

40

gct cct gcg gga ccc agc gtg agc ctc tac ctg agc gag gac gag gtg 317

Ala Pro Ala Gly Pro Ser Val Ser Leu Tyr Leu Ser Glu Asp Glu Val

45

50

55

cgc cgg ctg ctt ggt ctt gat gca gag ctt tac tat gtg aga aat gac 365  
 Arg Arg Leu Leu Gly Leu Asp Ala Glu Leu Tyr Tyr Val Arg Asn Asp  
 60 65 70  
 ctc atc agt cac tac gct ctg tcc ttt aac ctg cta gtg ccc agt gag 413  
 Leu Ile Ser His Tyr Ala Leu Ser Phe Asn Leu Leu Val Pro Ser Glu  
 75 80 85  
 aca aac ttc ctg cac ttc act tgg cat gca aag tcc aag gtt gaa tat 461  
 Thr Asn Phe Leu His Phe Thr Trp His Ala Lys Ser Lys Val Glu Tyr  
 90 95 100  
 aag ctg gga ttc caa gta gac aac ttt gtg gct atg ggc atg ccc cag 509  
 Lys Leu Gly Phe Gln Val Asp Asn Phe Val Ala Met Gly Met Pro Gln  
 105 110 115 120  
 gtc aat att tct gct caa ggg gag gtc cca cgc act tta tca gtg ttt 557  
 Val Asn Ile Ser Ala Gln Gly Glu Val Pro Arg Thr Leu Ser Val Phe  
 125 130 135  
 cgg gtc gag ctt tct tgt acc ggc aaa gtc gac tct gaa gtc atg att 605  
 Arg Val Glu Leu Ser Cys Thr Gly Lys Val Asp Ser Glu Val Met Ile  
 140 145 150  
 cta atg cag ctc aat ctg aca gtg aat tcc tca aaa aat ttt aca gtt 653  
 Leu Met Gln Leu Asn Leu Thr Val Asn Ser Ser Lys Asn Phe Thr Val  
 155 160 165  
 tta aat ttt aaa cga agg aaa atg tgc tac aaa aaa ctt gaa gaa gta 701  
 Leu Asn Phe Lys Arg Arg Lys Met Cys Tyr Lys Lys Leu Glu Glu Val  
 170 175 180  
 aaa act tca gcc ttg gac aaa aac act agc aga act att tat gac cct 749  
 Lys Thr Ser Ala Leu Asp Lys Asn Thr Ser Arg Thr Ile Tyr Asp Pro  
 185 190 195 200  
 gtc cat gca gcg cca acg act tcc acg cgt gtg ttt tac atc agt gta 797  
 Val His Ala Ala Pro Thr Thr Ser Thr Arg Val Phe Tyr Ile Ser Val

|  |      |     |     |
|--|------|-----|-----|
| 205  | 210  | 215 |     |
| ggg gtt tgc tgt gca gtg ata ttt ctt gta gca ata ata tta gcc gtt    | 845  |     |     |
| Gly Val Cys Cys Ala Val Ile Phe Leu Val Ala Ile Ile Leu Ala Val    |      |     |     |
| 220  | 225  | 230 |     |
| ttg cac ctt cat agc atg aaa agg att gaa ctg gat gac agc atc agc    | 893  |     |     |
| Leu His Leu His Ser Met Lys Arg Ile Glu Leu Asp Asp Ser Ile Ser    |      |     |     |
| 235  | 240  | 245 |     |
| gcc agc agt agt tcc cag ggg ctg tct cag ccg tct acc cag acg acc    | 941  |     |     |
| Ala Ser Ser Ser Ser Gln Gly Leu Ser Gln Pro Ser Thr Gln Thr Thr    |      |     |     |
| 250  | 255  | 260 |     |
| cag tat ctg aga gct gac aca ccc aac aat gca acg cca atc acc agc    | 989  |     |     |
| Gln Tyr Leu Arg Ala Asp Thr Pro Asn Asn Ala Thr Pro Ile Thr Ser    |      |     |     |
| 265  | 270  | 275 | 280 |
| tcc tca ggt tat cct acc ttg cgg ata gag aag aac gac ttg cga agt    | 1037 |     |     |
| Ser Ser Gly Tyr Pro Thr Leu Arg Ile Glu Lys Asn Asp Leu Arg Ser    |      |     |     |
| 285  | 290  | 295 |     |
| gtc act ctt ctg gaa gcc aaa gcc aag gtg aag gat atc gca ata tcc    | 1085 |     |     |
| Val Thr Leu Leu Glu Ala Lys Ala Lys Val Lys Asp Ile Ala Ile Ser    |      |     |     |
| 300  | 305  | 310 |     |
| aga gaa gga tca cac tga aagatgtcct ccaagaaggt acttttgggc           | 1133 |     |     |
| Arg Glu Gly Ser His  |      |     |     |
| 315  |      |     |     |
| gtattttcca tgggatittha gtagatgaaa aagatccaaa taaagagaag caaacatttg | 1193 |     |     |
| taaaaacagt taaagaccaa gcatctgaag itcaggigac gatgatgctc accgagagct  | 1253 |     |     |
| gcaagcttcg aggtctgcac cacagaaacc tccttcctat tactcatgtg tgcatagaag  | 1313 |     |     |
| aaggagaaaa gcccatgggtg gtattgccat acatgaattg ggggaatctt aaattatttc | 1373 |     |     |
| ttcggcagtg caaattagta gaagccaata atccacaggc aatttcccag caagatctgg  | 1433 |     |     |
| tccatatggc tattcagatt gcctgcggga tgagctacct ggcgaggaga gaagtgatcc  | 1493 |     |     |
| atagagacct ggctgctagg aactgtgtca tcgacgacac tcttcaagtc aagatcacag  | 1553 |     |     |

acaatgccct ttccagagac ttgtttccta tggactacca ctgcctaggg gacaacgaga 1613  
 acaggccagt gagatggatg gctctggaaa gctctggtaa taatgagttc tctagtgtta 1673  
 gtgacgtgtg ggccttttga gtgacgcigt gggagctcat gactctgggc cagacgccct 1733  
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 cacggatgcc cctcgtgcag cgcagtgcct gcaggggcac actgtctcca gatcaccag 2033  
 ccttagcagt gcttccaaac ctacagctttt aacgatgacg taataacgca gagtgttttc 2093  
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 ttttttaaaa tatagtactt ttggactagg ggggtgcatc ttttaaaaaa tgaataaaca 2213  
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<210> 928

<211> 317

<212> PRT

<213> Mus musculus

<400> 928

Met Arg Ala Gly Arg Gly Gly Val Pro Gly Ser Gly Gly Leu Arg Ala

1 5 10 15

Pro Pro Pro Leu Leu Leu Leu Leu Leu Ala Met Leu Pro Ala Ala Ala

20 25 30

Pro Arg Ser Pro Ala Leu Ala Ala Ala Pro Ala Gly Pro Ser Val Ser

35 40 45

Leu Tyr Leu Ser Glu Asp Glu Val Arg Arg Leu Leu Gly Leu Asp Ala  
 50 55 60  
 Glu Leu Tyr Tyr Val Arg Asn Asp Leu Ile Ser His Tyr Ala Leu Ser  
 65 70 75 80  
 Phe Asn Leu Leu Val Pro Ser Glu Thr Asn Phe Leu His Phe Thr Trp  
 85 90 95  
 His Ala Lys Ser Lys Val Glu Tyr Lys Leu Gly Phe Gln Val Asp Asn  
 100 105 110  
 Phe Val Ala Met Gly Met Pro Gln Val Asn Ile Ser Ala Gln Gly Glu  
 115 120 125  
 Val Pro Arg Thr Leu Ser Val Phe Arg Val Glu Leu Ser Cys Thr Gly  
 130 135 140  
 Lys Val Asp Ser Glu Val Met Ile Leu Met Gln Leu Asn Leu Thr Val  
 145 150 155 160  
 Asn Ser Ser Lys Asn Phe Thr Val Leu Asn Phe Lys Arg Arg Lys Met  
 165 170 175  
 Cys Tyr Lys Lys Leu Glu Glu Val Lys Thr Ser Ala Leu Asp Lys Asn  
 180 185 190  
 Thr Ser Arg Thr Ile Tyr Asp Pro Val His Ala Ala Pro Thr Thr Ser  
 195 200 205  
 Thr Arg Val Phe Tyr Ile Ser Val Gly Val Cys Cys Ala Val Ile Phe  
 210 215 220  
 Leu Val Ala Ile Ile Leu Ala Val Leu His Leu His Ser Met Lys Arg  
 225 230 235 240  
 Ile Glu Leu Asp Asp Ser Ile Ser Ala Ser Ser Ser Ser Gln Gly Leu  
 245 250 255  
 Ser Gln Pro Ser Thr Gln Thr Thr Gln Tyr Leu Arg Ala Asp Thr Pro  
 260 265 270  
 Asn Asn Ala Thr Pro Ile Thr Ser Ser Ser Gly Tyr Pro Thr Leu Arg

|   |     |     |
|---|-----|-----|
| 275   | 280 | 285 |
| Ile Glu Lys Asn Asp Leu Arg Ser Val Thr Leu Leu Glu Ala Lys Ala |     |     |
| 290   | 295 | 300 |
| Lys Val Lys Asp Ile Ala Ile Ser Arg Glu Gly Ser His             |     |     |
| 305   | 310 | 315 |

&lt;210&gt; 929

&lt;211&gt; 352

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 929

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agctcttcaa gccttcctta atgggaatga attctgcggg aatccatgag accacctaca 180
acagcatcat gaattgcgac atcgacatca ggaaggacct gtatgccaac aacgcatgt 240
cagggggcac caccatgtac cctggatcgc ctgaccgcta tgcagaagga gttcaagctc 300
tggctcaagc accatgaaga tgagatcatg cccccctgag cgctgtctca gt      352

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&lt;210&gt; 930

&lt;211&gt; 628

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 930

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taggacgggc acggagcagg gttgcgttct ctgaagtcgc agactgtaag atctggatat 60
gtccttcata ttgactgga ttacagtgg tticagcagt gtgctgcagt ttctaggatt 120
gtataaaaag tctggtaaac tggatctcct tggattggat aatgccggga aaacaacttt 180
gctacacatg ctgaaagatg acaggctcgg gcagcacgtc ccaacgctac atcccacttc 240

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agaagagctt actattgctg gcatgacgtt tacaactttt gatctgggtg ggcacgtgca 300  
 agcccgaaaga gtaatggaaaa actaccttcc tgctatcaat ggcatgtgat ttcttgigga 360  
 ttgtgcagac catgaaaggc tgtagaatc aaaagaagaa ctigattcac taatgacaga 420  
 tgaaccatt gccaacgtgc ctattctaatt tcttggaat aagatcgaca gacctgaagc 480  
 catcagtga gagaggttac gagagatgtt tggtttatat ggtcagacaa caggaaagg 540  
 tagtgtgca ctgaaggagc tgaacgcccg gcctctggaa gtgttcatgt gcagtgtgct 600  
 aaaaaggcag ggctatggag aaggcttc 628

<210> 931

<211> 905

<212> DNA

<213> Mus musculus

<400> 931

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 cagcggggct ggcgctgtga caactgccgt agacctgggg ctgctgaacc cagtcccgat 180  
 ggcaccaccg gccacaacta caaccagtat acacagagat acaatcagag acaaaacact 240  
 aacgtaaatt gcccattga gtgcttcatg ccgttagatg tgcaagctga cagagacgat 300  
 tctcgagagt aatctttcca gcccaccct acaagtgtct ctctaccaag gtcaatccac 360  
 accccagtga tgtagcaga cctccatct ttgagtggc cttccaccct taagccittt 420  
 gctctggagc ctagtctca gcttcagcac aatttacagc ttctccaagc atgccccgt 480  
 gggatgtttg agacttctct cctcaatggt gacagttggt caccctgttc tgcttcaggg 540  
 ttccagtact gctcagtgtt gtttaagaga atcaaaagtt cttatggttt ggtctgggat 600  
 caataggga acacaggtag ccaactagga ggaaatgtac tgaatgctag taccgaagac 660  
 ctgagcaagg aaagtcacc agacacctct gctttctttt gccatctgac ctgcagcact 720  
 gtcaggacat ggcctgtggc tgtgtgtcaa acaccctcc cacagaactc actttgiccc 780  
 aacaattcag attgcctaga aataccttc tcttacctgt ttgttattta tcaattttc 840  
 ccagtatatt tatacggaaa aaattgtatt gaagacactt tgtatgcagt tgataagagg 900

aattc

905

&lt;210&gt; 932

&lt;211&gt; 6512

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (132).. (5141)

&lt;400&gt; 932

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ggcgcgccac c atg ggg ccc cgg ctc agc gtc tgg ctt ctg ctg ctc ttc 170
      Met Gly Pro Arg Leu Ser Val Trp Leu Leu Leu Leu Phe
            1             5             10
gcc gcc ctt ctg ctc cac gag gag cgc agc cga gca gct gcg aag ggc 218
Ala Ala Leu Leu Leu His Glu Glu Arg Ser Arg Ala Ala Ala Lys Gly
      15             20             25
gat tgt ggt ggc tct ggc tgt gga aaa tgt gac tgt cat ggc gtg aag 266
Asp Cys Gly Gly Ser Gly Cys Gly Lys Cys Asp Cys His Gly Val Lys
      30             35             40             45
gga caa aag gga gaa aga ggc ttg cca ggg ttg caa ggt gtc att gga 314
Gly Gln Lys Gly Glu Arg Gly Leu Pro Gly Leu Gln Gly Val Ile Gly
            50             55             60
ttt ccc ggg atg caa gga cct gag ggg cca cat gga cca cca gga caa 362
Phe Pro Gly Met Gln Gly Pro Glu Gly Pro His Gly Pro Pro Gly Gln
            65             70             75

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aag ggt gat gct gga gaa cct gga ctt cct ggc aca aaa ggg acg agg 410  
 Lys Gly Asp Ala Gly Glu Pro Gly Leu Pro Gly Thr Lys Gly Thr Arg  
           80                          85                          90  
 gga ccc cct gga gca gct ggc tac cct ggg aat ccc gga ctt cct ggt 458  
 Gly Pro Pro Gly Ala Ala Gly Tyr Pro Gly Asn Pro Gly Leu Pro Gly  
           95                          100                          105  
 att cct ggc caa gat ggc cct cca ggt ccc cca ggt atc cca gga tgc 506  
 Ile Pro Gly Gln Asp Gly Pro Pro Gly Pro Pro Gly Ile Pro Gly Cys  
 110                          115                          120                          125  
 aac ggt aca aag gga gag aga ggg ccg ctc ggt cct cct ggc ttg cct 554  
 Asn Gly Thr Lys Gly Glu Arg Gly Pro Leu Gly Pro Pro Gly Leu Pro  
                           130                          135                          140  
 gga ttc agc ggc aat cct gga cca cca ggg tta cca gga atg aag gga 602  
 Gly Phe Ser Gly Asn Pro Gly Pro Pro Gly Leu Pro Gly Met Lys Gly  
                           145                          150                          155  
 gat cct ggt gaa att ctc ggc cac gtt ccc gga aca ctg ctg aaa ggg 650  
 Asp Pro Gly Glu Ile Leu Gly His Val Pro Gly Thr Leu Leu Lys Gly  
           160                          165                          170  
 gag aga gga ttt cct ggt atc ccc ggg atg ccg ggc tca cca ggg ttg 698  
 Glu Arg Gly Phe Pro Gly Ile Pro Gly Met Pro Gly Ser Pro Gly Leu  
           175                          180                          185  
 cca gga ctc cag gga ccc gtg ggt cct ccg gga ttt act gga cca ccg 746  
 Pro Gly Leu Gln Gly Pro Val Gly Pro Pro Gly Phe Thr Gly Pro Pro  
 190                          195                          200                          205  
 ggt cct cca ggc cct cct gga cct cct gga gaa aag ggc cag atg ggc 794  
 Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Glu Lys Gly Gln Met Gly  
                           210                          215                          220  
 tcc agc ttc caa gga cca aaa ggt gac aag gga gag caa ggg gtc agc 842  
 Ser Ser Phe Gln Gly Pro Lys Gly Asp Lys Gly Glu Gln Gly Val Ser

|   |     |     |      |
|---|-----|-----|------|
| 225   | 230 | 235 |      |
| ggt ccc ccg gga gtt cct gga cag gca caa gtt aag gaa aaa gga gac |     |     | 890  |
| Gly Pro Pro Gly Val Pro Gly Gln Ala Gln Val Lys Glu Lys Gly Asp |     |     |      |
| 240   | 245 | 250 |      |
| ttt gcc cca aca gga gaa aag ggt cag aaa ggt gaa cct gga ttt ccg |     |     | 938  |
| Phe Ala Pro Thr Gly Glu Lys Gly Gln Lys Gly Glu Pro Gly Phe Pro |     |     |      |
| 255   | 260 | 265 |      |
| gga gta cca gga tat gga gag aaa ggt gaa cct ggc aag caa ggg cct |     |     | 986  |
| Gly Val Pro Gly Tyr Gly Glu Lys Gly Glu Pro Gly Lys Gln Gly Pro |     |     |      |
| 270   | 275 | 280 | 285  |
| cgg gga aaa cct ggg aaa gac ggt gaa aaa gga gaa agg ggg agc ccg |     |     | 1034 |
| Arg Gly Lys Pro Gly Lys Asp Gly Glu Lys Gly Glu Arg Gly Ser Pro |     |     |      |
| 290   | 295 | 300 |      |
| ggc att cct ggc gat tcc ggg tac cca ggt ctc cca ggc cgg cag ggc |     |     | 1082 |
| Gly Ile Pro Gly Asp Ser Gly Tyr Pro Gly Leu Pro Gly Arg Gln Gly |     |     |      |
| 305   | 310 | 315 |      |
| ccg cag gga gag aag ggt gaa gct gga ctt cca ggc ccc cct gga act |     |     | 1130 |
| Pro Gln Gly Glu Lys Gly Glu Ala Gly Leu Pro Gly Pro Pro Gly Thr |     |     |      |
| 320   | 325 | 330 |      |
| gtg ata ggc acc atg cct ttg gga gag aaa gga gat cga ggc tac cca |     |     | 1178 |
| Val Ile Gly Thr Met Pro Leu Gly Glu Lys Gly Asp Arg Gly Tyr Pro |     |     |      |
| 335   | 340 | 345 |      |
| gga gca cca ggg ttg aga gga gag ccc ggc cct aaa ggt ttc cct gga |     |     | 1226 |
| Gly Ala Pro Gly Leu Arg Gly Glu Pro Gly Pro Lys Gly Phe Pro Gly |     |     |      |
| 350   | 355 | 360 | 365  |
| aca cca ggc caa cca ggc cct cca ggt ttc cct act cca ggc cag gct |     |     | 1274 |
| Thr Pro Gly Gln Pro Gly Pro Pro Gly Phe Pro Thr Pro Gly Gln Ala |     |     |      |
| 370   | 375 | 380 |      |
| ggt gct cca ggc ttc cca ggt gaa agg gga gaa aaa ggt gac cag gga |     |     | 1322 |

Gly Ala Pro Gly Phe Pro Gly Glu Arg Gly Glu Lys Gly Asp Gln Gly  
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 Phe Pro Gly Val Ser Leu Pro Gly Pro Ser Gly Arg Asp Gly Ala Pro  
                   400                                  405                                  410  
 ggg cct ccc ggc cct ccc ggc ccc cct ggg cag cca ggc cac aca aat 1418  
 Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Gln Pro Gly His Thr Asn  
                   415                                  420                                  425  
 ggc att gtg gag tgt caa cct gga cca ccc ggg gac cag ggc cct cct 1466  
 Gly Ile Val Glu Cys Gln Pro Gly Pro Pro Gly Asp Gln Gly Pro Pro  
                   430                                  435                                  440                                  445  
 ggg act cca gga cag cca ggt ttg aca ggt gaa gtt gga cag aaa ggt 1514  
 Gly Thr Pro Gly Gln Pro Gly Leu Thr Gly Glu Val Gly Gln Lys Gly  
                                   450                                  455                                  460  
 cag aaa gga gag agc tgc ctt gcc tgt gac aca gaa gga ctt cgt ggc 1562  
 Gln Lys Gly Glu Ser Cys Leu Ala Cys Asp Thr Glu Gly Leu Arg Gly  
                                   465                                  470                                  475  
 cct cca ggg cca cag ggg cct ccg gga gag att ggt ttc cct gga caa 1610  
 Pro Pro Gly Pro Gln Gly Pro Pro Gly Glu Ile Gly Phe Pro Gly Gln  
                   480                                  485                                  490  
 cct ggg gct aaa ggt gac cga ggc ctg ccc ggc aga gat ggt ctt gaa 1658  
 Pro Gly Ala Lys Gly Asp Arg Gly Leu Pro Gly Arg Asp Gly Leu Glu  
                   495                                  500                                  505  
 gga ttg ccg ggt cca caa ggt tca cca ggg ctt ata ggc cag cct gga 1706  
 Gly Leu Pro Gly Pro Gln Gly Ser Pro Gly Leu Ile Gly Gln Pro Gly  
                   510                                  515                                  520                                  525  
 gct aag gga gag cct gga gag ata ttt ttt gac atg cga ctc aaa ggt 1754  
 Ala Lys Gly Glu Pro Gly Glu Ile Phe Phe Asp Met Arg Leu Lys Gly  
                                   530                                  535                                  540

gac aaa gga gac cca ggt ttt ccg gga cag cct ggc atg cca gga aga 1802  
 Asp Lys Gly Asp Pro Gly Phe Pro Gly Gln Pro Gly Met Pro Gly Arg  
 545 550 555  
 gca gga act ccc gga aga gat ggc cac cca gga ctc cct gga ccc aaa 1850  
 Ala Gly Thr Pro Gly Arg Asp Gly His Pro Gly Leu Pro Gly Pro Lys  
 560 565 570  
 ggc tct ccg ggt tca ata gga ttg aaa gga gag cga ggt cct ccc gga 1898  
 Gly Ser Pro Gly Ser Ile Gly Leu Lys Gly Glu Arg Gly Pro Pro Gly  
 575 580 585  
 gga gtt ggc ttc cct ggt agt cgt gga gac atc ggc cct cct gga ccc 1946  
 Gly Val Gly Phe Pro Gly Ser Arg Gly Asp Ile Gly Pro Pro Gly Pro  
 590 595 600 605  
 cca gga gtt ggc ccc att ggt cct gtt ggt gaa aaa gga caa gca ggc 1994  
 Pro Gly Val Gly Pro Ile Gly Pro Val Gly Glu Lys Gly Gln Ala Gly  
 610 615 620  
 ttt cct gga ggc cct ggg tcc cca ggt ctt cca ggc cca aag ggt gag 2042  
 Phe Pro Gly Gly Pro Gly Ser Pro Gly Leu Pro Gly Pro Lys Gly Glu  
 625 630 635  
 gca gga aag gtt gtc cca ctc cct ggc ccc cca gga gct gca gga ctt 2090  
 Ala Gly Lys Val Val Pro Leu Pro Gly Pro Pro Gly Ala Ala Gly Leu  
 640 645 650  
 cca gga tcc cct ggc ttc cca ggg cca caa ggt gac cga ggc ttc cca 2138  
 Pro Gly Ser Pro Gly Phe Pro Gly Pro Gln Gly Asp Arg Gly Phe Pro  
 655 660 665  
 gga acc cca gga cgt cca ggc atc ccg gga gag aaa ggt gct gtg ggc 2186  
 Gly Thr Pro Gly Arg Pro Gly Ile Pro Gly Glu Lys Gly Ala Val Gly  
 670 675 680 685  
 cag cca gga att gga ttt cct ggg ctt cct ggc ccc aaa ggt gtt gat 2234  
 Gln Pro Gly Ile Gly Phe Pro Gly Leu Pro Gly Pro Lys Gly Val Asp

|   |      |     |     |
|---|------|-----|-----|
| 690   | 695  | 700 |     |
| ggc ttg cct gga gag ata gga cgg cct ggg agt cca ggt cgc cct gga | 2282 |     |     |
| Gly Leu Pro Gly Glu Ile Gly Arg Pro Gly Ser Pro Gly Arg Pro Gly |      |     |     |
| 705   | 710  | 715 |     |
| ttt aac ggc tta cct ggc aac cca gga cct caa ggt caa aag gga gaa | 2330 |     |     |
| Phe Asn Gly Leu Pro Gly Asn Pro Gly Pro Gln Gly Gln Lys Gly Glu |      |     |     |
| 720   | 725  | 730 |     |
| cct ggc att ggg ctt cca gga ctc aaa ggg caa cca ggc ctt cca ggc | 2378 |     |     |
| Pro Gly Ile Gly Leu Pro Gly Leu Lys Gly Gln Pro Gly Leu Pro Gly |      |     |     |
| 735   | 740  | 745 |     |
| att ccc ggt aca cct gga gag aag ggt agc atc ggg gga ccc ggc gtt | 2426 |     |     |
| Ile Pro Gly Thr Pro Gly Glu Lys Gly Ser Ile Gly Gly Pro Gly Val |      |     |     |
| 750   | 755  | 760 | 765 |
| cca gga gaa cag ggg ttg aca ggc ccc cca gga ctc cag ggg atc aga | 2474 |     |     |
| Pro Gly Glu Gln Gly Leu Thr Gly Pro Pro Gly Leu Gln Gly Ile Arg |      |     |     |
| 770   | 775  | 780 |     |
| ggt gac cca ggg cct cct gga gtt caa ggc cca gca ggt cca cca ggg | 2522 |     |     |
| Gly Asp Pro Gly Pro Pro Gly Val Gln Gly Pro Ala Gly Pro Pro Gly |      |     |     |
| 785   | 790  | 795 |     |
| gtc cca gga ata ggg cca ccc gga gct atg ggc cct ccc gga ggg gaa | 2570 |     |     |
| Val Pro Gly Ile Gly Pro Pro Gly Ala Met Gly Pro Pro Gly Gly Glu |      |     |     |
| 800   | 805  | 810 |     |
| gga cca cca ggg tca tca ggt cca cct gga att aaa gga gag aaa ggg | 2618 |     |     |
| Gly Pro Pro Gly Ser Ser Gly Pro Pro Gly Ile Lys Gly Glu Lys Gly |      |     |     |
| 815   | 820  | 825 |     |
| ttc cct gga ttc ccc gga ctg gat atg cct ggt ccc aaa ggc gat aaa | 2666 |     |     |
| Phe Pro Gly Phe Pro Gly Leu Asp Met Pro Gly Pro Lys Gly Asp Lys |      |     |     |
| 830   | 835  | 840 | 845 |
| ggc tct caa gga ctt cct ggc ctc aca gga cag tca ggc ctc cct ggc | 2714 |     |     |

Gly Ser Gln Gly Leu Pro Gly Leu Thr Gly Gln Ser Gly Leu Pro Gly  
 850 855 860  
 ctt cct gga cag cag ggg aca cct gga gtt cca ggg ttc cca ggt tct 2762  
 Leu Pro Gly Gln Gln Gly Thr Pro Gly Val Pro Gly Phe Pro Gly Ser  
 865 870 875  
 aaa ggt gaa atg ggt gtc atg gga acc ccg gga caa cca ggc tcg cca 2810  
 Lys Gly Glu Met Gly Val Met Gly Thr Pro Gly Gln Pro Gly Ser Pro  
 880 885 890  
 gga cca gca ggc acc cca ggg tta cct gga gaa aaa ggg gac cat ggc 2858  
 Gly Pro Ala Gly Thr Pro Gly Leu Pro Gly Glu Lys Gly Asp His Gly  
 895 900 905  
 ctt ccg ggc tcc tca gga ccc agg ggc gac cct ggc ttc aaa ggt gat 2906  
 Leu Pro Gly Ser Ser Gly Pro Arg Gly Asp Pro Gly Phe Lys Gly Asp  
 910 915 920 925  
 aaa ggt gac gtt ggg ctt cct ggc atg cca gga tcc atg gag cat gtg 2954  
 Lys Gly Asp Val Gly Leu Pro Gly Met Pro Gly Ser Met Glu His Val  
 930 935 940  
 gac atg ggg agc atg aag gga cag aaa gga gac cag gga gag aaa gga 3002  
 Asp Met Gly Ser Met Lys Gly Gln Lys Gly Asp Gln Gly Glu Lys Gly  
 945 950 955  
 caa atc gga ccc act ggt gat aaa ggt tcc cga gga gac cct gga aca 3050  
 Gln Ile Gly Pro Thr Gly Asp Lys Gly Ser Arg Gly Asp Pro Gly Thr  
 960 965 970  
 cca gga gta cct ggg aag gat ggg cag gca ggg cat ccc gga cag cca 3098  
 Pro Gly Val Pro Gly Lys Asp Gly Gln Ala Gly His Pro Gly Gln Pro  
 975 980 985  
 ggg cct aaa ggt gac cca ggc ctt agt ggg aca cca gga tcc cct gga 3146  
 Gly Pro Lys Gly Asp Pro Gly Leu Ser Gly Thr Pro Gly Ser Pro Gly  
 990 995 1000 1005



ctc cct gga ccc aaa gga tca gtt gga gga atg ggc ttg cca ggt tgc 3194  
 Leu Pro Gly Pro Lys Gly Ser Val Gly Gly Met Gly Leu Pro Gly Ser  
 1010 1015 1020  
 cct gga gaa aaa ggt gtg cct ggc atc cct ggc tca cag ggt gtc cct 3242  
 Pro Gly Glu Lys Gly Val Pro Gly Ile Pro Gly Ser Gln Gly Val Pro  
 1025 1030 1035  
 ggc tca cct gga gag aag gga gcc aaa gga gag aaa ggg cag tca ggt 3290  
 Gly Ser Pro Gly Glu Lys Gly Ala Lys Gly Glu Lys Gly Gln Ser Gly  
 1040 1045 1050  
 cta cct ggc att ggg att ccg gga cgg cct ggt gac aag gga gac cag 3338  
 Leu Pro Gly Ile Gly Ile Pro Gly Arg Pro Gly Asp Lys Gly Asp Gln  
 1055 1060 1065  
 ggc ctt gct ggc ttc cca ggc agc ccc ggt gag aag gga gag aaa ggc 3386  
 Gly Leu Ala Gly Phe Pro Gly Ser Pro Gly Glu Lys Gly Glu Lys Gly  
 1070 1075 1080 1085  
 agt gcc gga acc cca ggg atg cca ggg tcc cca ggc ccg aga ggt tct 3434  
 Ser Ala Gly Thr Pro Gly Met Pro Gly Ser Pro Gly Pro Arg Gly Ser  
 1090 1095 1100  
 ccg ggg aac atc ggc cat cca gga agc cca ggc ctg cct gga gag aaa 3482  
 Pro Gly Asn Ile Gly His Pro Gly Ser Pro Gly Leu Pro Gly Glu Lys  
 1105 1110 1115  
 ggg gat aaa ggc ctc cca gga ctg gat ggc gtt cct ggt gtc aaa gga 3530  
 Gly Asp Lys Gly Leu Pro Gly Leu Asp Gly Val Pro Gly Val Lys Gly  
 1120 1125 1130  
 gaa gca ggt ctc cct ggg act cct ggc ccc aca ggc cca gct ggc cag 3578  
 Glu Ala Gly Leu Pro Gly Thr Pro Gly Pro Thr Gly Pro Ala Gly Gln  
 1135 1140 1145  
 aag gga gag ccg ggc agc gat gga atc ccg ggg tcg gca gga gag aag 3626  
 Lys Gly Glu Pro Gly Ser Asp Gly Ile Pro Gly Ser Ala Gly Glu Lys

|   |      |      |      |      |
|---|------|------|------|------|
| 1150  | 1155 | 1160 | 1165 |      |
| ggt gaa caa ggt gtt cca gga aga ggc ttc ccc ggc ttc cct ggc tcc |      |      |      | 3674 |
| Gly Glu Gln Gly Val Pro Gly Arg Gly Phe Pro Gly Phe Pro Gly Ser |      |      |      |      |
|   | 1170 | 1175 | 1180 |      |
| aaa gga gac aaa ggc tcc aag ggt gaa gtg ggt ttc cct ggc cta gct |      |      |      | 3722 |
| Lys Gly Asp Lys Gly Ser Lys Gly Glu Val Gly Phe Pro Gly Leu Ala |      |      |      |      |
|   | 1185 | 1190 | 1195 |      |
| gga agt cct gga att cct gga gtc aaa ggc gag caa ggg ttc atg ggt |      |      |      | 3770 |
| Gly Ser Pro Gly Ile Pro Gly Val Lys Gly Glu Gln Gly Phe Met Gly |      |      |      |      |
|   | 1200 | 1205 | 1210 |      |
| cct cct ggc cct caa gga caa ccc ggc tta cct ggc act cct ggt cac |      |      |      | 3818 |
| Pro Pro Gly Pro Gln Gly Gln Pro Gly Leu Pro Gly Thr Pro Gly His |      |      |      |      |
|   | 1215 | 1220 | 1225 |      |
| cct gtg gag ggg ccc aaa gga gac cga gga cct cag ggt caa cct ggc |      |      |      | 3866 |
| Pro Val Glu Gly Pro Lys Gly Asp Arg Gly Pro Gln Gly Gln Pro Gly |      |      |      |      |
| 1230  | 1235 | 1240 | 1245 |      |
| ctg cca ggg cat ccg gga cct atg ggg ccg cca ggg ttc cca gga atc |      |      |      | 3914 |
| Leu Pro Gly His Pro Gly Pro Met Gly Pro Pro Gly Phe Pro Gly Ile |      |      |      |      |
|   | 1250 | 1255 | 1260 |      |
| aat ggg cca aaa ggt gac aag gga aat caa ggt tgg cca gga gct ccg |      |      |      | 3962 |
| Asn Gly Pro Lys Gly Asp Lys Gly Asn Gln Gly Trp Pro Gly Ala Pro |      |      |      |      |
|   | 1265 | 1270 | 1275 |      |
| ggg gtt cca ggc cct aag gga gac cca gga ttc caa ggc atg ccc ggc |      |      |      | 4010 |
| Gly Val Pro Gly Pro Lys Gly Asp Pro Gly Phe Gln Gly Met Pro Gly |      |      |      |      |
|   | 1280 | 1285 | 1290 |      |
| att ggc ggc tct cca ggg atc aca ggt tca aag gga gat atg gga ctg |      |      |      | 4058 |
| Ile Gly Gly Ser Pro Gly Ile Thr Gly Ser Lys Gly Asp Met Gly Leu |      |      |      |      |
|   | 1295 | 1300 | 1305 |      |
| ccc gga gtt cca gga ttt caa ggt cag aaa ggg cit cct ggt ctg cag |      |      |      | 4106 |

Pro Gly Val Pro Gly Phe Gln Gly Gln Lys Gly Leu Pro Gly Leu Gln  
 1310 1315 1320 1325  
 gga gtg aaa gga gac cag gga gac caa ggt gta ccc ggc cct aaa ggt 4154  
 Gly Val Lys Gly Asp Gln Gly Asp Gln Gly Val Pro Gly Pro Lys Gly  
 1330 1335 1340  
 ctc caa ggt ccc cct ggg cct cca ggt ccc tac gat gtc atc aaa gga 4202  
 Leu Gln Gly Pro Pro Gly Pro Pro Gly Pro Tyr Asp Val Ile Lys Gly  
 1345 1350 1355  
 gaa cca ggg ctc cct ggt cct gag ggt ccc cct ggt ctt aaa gga ctc 4250  
 Glu Pro Gly Leu Pro Gly Pro Glu Gly Pro Pro Gly Leu Lys Gly Leu  
 1360 1365 1370  
 cag gga cca cca ggt cca aaa gga cag caa ggt gtg aca ggc tca gtg 4298  
 Gln Gly Pro Pro Gly Pro Lys Gly Gln Gln Gly Val Thr Gly Ser Val  
 1375 1380 1385  
 ggc ttg cct gga cct cca ggt gtc cct ggg ttc gat ggt gct cct ggc 4346  
 Gly Leu Pro Gly Pro Pro Gly Val Pro Gly Phe Asp Gly Ala Pro Gly  
 1390 1395 1400 1405  
 cag aaa gga gag aca gga ccc ttt gga cca cct ggt cca aga ggg ttt 4394  
 Gln Lys Gly Glu Thr Gly Pro Phe Gly Pro Pro Gly Pro Arg Gly Phe  
 1410 1415 1420  
 cct ggc cca cca ggc ccc gat ggg ctg cca gga tcc atg ggt ccc cca 4442  
 Pro Gly Pro Pro Gly Pro Asp Gly Leu Pro Gly Ser Met Gly Pro Pro  
 1425 1430 1435  
 ggt acc cca tct gtg gac cat ggc ttc ctt gtg acc agg cat agt cag 4490  
 Gly Thr Pro Ser Val Asp His Gly Phe Leu Val Thr Arg His Ser Gln  
 1440 1445 1450  
 aca aca gat gac cca ctg tgt ccc cca ggg acc aaa att ctt tac cat 4538  
 Thr Thr Asp Asp Pro Leu Cys Pro Pro Gly Thr Lys Ile Leu Tyr His  
 1455 1460 1465

gga tac tct ctg ctc tat gtc caa ggc aac gag cgt gcc cac ggg cag 4586  
 Gly Tyr Ser Leu Leu Tyr Val Gln Gly Asn Glu Arg Ala His Gly Gln  
 1470 1475 1480 1485  
 gac ttg ggt acg gct ggc agc tgc ctg cgt aag ttc agc acc atg ccc 4634  
 Asp Leu Gly Thr Ala Gly Ser Cys Leu Arg Lys Phe Ser Thr Met Pro  
 1490 1495 1500  
 ttt ctc ttc tgc aac atc aac aac gtc tgc aac ttc gcc tcc agg aac 4682  
 Phe Leu Phe Cys Asn Ile Asn Asn Val Cys Asn Phe Ala Ser Arg Asn  
 1505 1510 1515  
 gac tac tct tac tgg ctg tcc acg cca gag ccc atg ccc atg tcc atg 4730  
 Asp Tyr Ser Tyr Trp Leu Ser Thr Pro Glu Pro Met Pro Met Ser Met  
 1520 1525 1530  
 gca ccc atc tct ggg gac aac atc cgg ccc ttc att agc agg tgt gcg 4778  
 Ala Pro Ile Ser Gly Asp Asn Ile Arg Pro Phe Ile Ser Arg Cys Ala  
 1535 1540 1545  
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 Val Cys Glu Ala Pro Ala Met Val Met Ala Val His Ser Gln Thr Ile  
 1550 1555 1560 1565  
 cag att ccg cag tgc cct aac ggt tgg tcc tca ctg tgg atc ggc tat 4874  
 Gln Ile Pro Gln Cys Pro Asn Gly Trp Ser Ser Leu Trp Ile Gly Tyr  
 1570 1575 1580  
 tcc ttc gtg atg cac acc agc gct ggt gct gaa ggt tcc ggc caa gcc 4922  
 Ser Phe Val Met His Thr Ser Ala Gly Ala Glu Gly Ser Gly Gln Ala  
 1585 1590 1595  
 ctc gca tcc ccc ggg tcc tgt ctg gaa gag ttt aga agc gcc cca ttc 4970  
 Leu Ala Ser Pro Gly Ser Cys Leu Glu Glu Phe Arg Ser Ala Pro Phe  
 1600 1605 1610  
 atc gag tgc cac ggc aga gga acg tgc aat tac tac gca aat gct tac 5018  
 Ile Glu Cys His Gly Arg Gly Thr Cys Asn Tyr Tyr Ala Asn Ala Tyr

|  |      |      |      |
|--|------|------|------|
| 1615   | 1620 | 1625 |      |
| agc ttt tgg ctc gcc acc ata gag aga agc gag atg ttc aag aag ccc    |      |      | 5066 |
| Ser Phe Trp Leu Ala Thr Ile Glu Arg Ser Glu Met Phe Lys Lys Pro    |      |      |      |
| 1630   | 1635 | 1640 | 1645 |
| acg cca tcc acc ttg aag gca ggg gag ctg cga aca cac gtc agc cgc    |      |      | 5114 |
| Thr Pro Ser Thr Leu Lys Ala Gly Glu Leu Arg Thr His Val Ser Arg    |      |      |      |
| 1650   | 1655 | 1660 |      |
| tgc caa gtg tgc atg aga aga aca taa ctatgatgct cgcctctgcc          |      |      | 5161 |
| Cys Gln Val Cys Met Arg Arg Thr                                    |      |      |      |
| 1665   | 1670 |      |      |
| accgtcacaa catggtgcta ctccccccc ttgtcctctt ctccctccca ttgtatttgt   |      |      | 5221 |
| aacagcaatg aaccctagaa ttatatcttg tgtacctcac tgtccactat gaaaaccata  |      |      | 5281 |
| aagtgcctta tagggattcg cgtaactaac acaccccgct tcgttggcct ctgtttgctg  |      |      | 5341 |
| aaggagaagg acaggcagcg gagagctttc cataatggca cataccaa at ggcgctcctg |      |      | 5401 |
| atccaataaa agatgaattg catittgcaa tccagtgcac tgaatgtctgg ggcgagaact |      |      | 5461 |
| ccataagaaa ccaaagggtg ctaggggcgt gagcgctctt ccacacagcc cacagccgc   |      |      | 5521 |
| ttcatcctgt caccacagat gtgagtgtg tccaaccac tgtccagtgt ticcacatca    |      |      | 5581 |
| ggtcctcga ggggctatgc agagaacagt caagggaact ggtttcttcc actttctaca   |      |      | 5641 |
| tggaactcca tcgtttcagc ccaaacaca aacttatgcc ctgtgtggta ctatgcagct   |      |      | 5701 |
| gcttttgttg aagtcattggc ttctctgttg aataaagatg gtccaaaggt tagatggaaa |      |      | 5761 |
| ataaataaat aagtaaataa atatatatat atattagtaa tttatatagg tgcagcaat   |      |      | 5821 |
| taggcaggtc aagttctagc gtagagcctg ttgttaaata aagcgactt ggtttctgc    |      |      | 5881 |
| tctggagaaa ctgtactatc cttcacagg gttaccaaca tcaggccact gaatgtgaaa   |      |      | 5941 |
| caccagcttt cctcaaactc actcctaaac cagaggaggt gtatagatag ccaaagccaa  |      |      | 6001 |
| accatttctt aaacatggtg tctgataatg agccctgtgc ctggcgcttc ttgcttctgc  |      |      | 6061 |
| tctgcgtgga gtattttcag ggtttgcaac actaaccaca gactgaatga ctgacttccc  |      |      | 6121 |
| gtacgacagc caaggccttt gttagcctcc ttcatcctgc atcctggcag gcatttcaca  |      |      | 6181 |
| cctgagcaca cacaggcaac ticcagctc ctctcgagct gtgacacagc cccctgcagg   |      |      | 6241 |
| gagtggacag gtcgcaggag ggcagactcg gaccactatg ctgaagtga catttacta    |      |      | 6301 |

aaagtaCcca ccctccaaaa aaaaaaaaaa agttttttaa gactactaag gccttctgtg 6361  
 taatttcttt aaatgtgtat ttcttaagaa ttcaaatttg taataaaact atttgtataa 6421  
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<210> 933

<211> 1669

<212> PRT

<213> Mus musculus

<400> 933

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Pro | Arg | Leu | Ser | Val | Trp | Leu | Leu | Leu | Leu | Phe | Ala | Ala | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Leu | Leu | His | Glu | Glu | Arg | Ser | Arg | Ala | Ala | Ala | Lys | Gly | Asp | Cys | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Gly | Ser | Gly | Cys | Gly | Lys | Cys | Asp | Cys | His | Gly | Val | Lys | Gly | Gln | Lys |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |
| Gly | Glu | Arg | Gly | Leu | Pro | Gly | Leu | Gln | Gly | Val | Ile | Gly | Phe | Pro | Gly |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |
| Met | Gln | Gly | Pro | Glu | Gly | Pro | His | Gly | Pro | Pro | Gly | Gln | Lys | Gly | Asp |
|     |     |     | 65  |     |     |     |     | 70  |     |     |     | 75  |     |     | 80  |
| Ala | Gly | Glu | Pro | Gly | Leu | Pro | Gly | Thr | Lys | Gly | Thr | Arg | Gly | Pro | Pro |
|     |     |     |     |     |     |     |     | 85  |     |     |     | 90  |     |     | 95  |
| Gly | Ala | Ala | Gly | Tyr | Pro | Gly | Asn | Pro | Gly | Leu | Pro | Gly | Ile | Pro | Gly |
|     |     |     |     |     |     |     |     | 100 |     |     |     | 105 |     |     | 110 |
| Gln | Asp | Gly | Pro | Pro | Gly | Pro | Pro | Gly | Ile | Pro | Gly | Cys | Asn | Gly | Thr |
|     |     |     |     |     |     |     |     | 115 |     |     |     | 120 |     |     | 125 |
| Lys | Gly | Glu | Arg | Gly | Pro | Leu | Gly | Pro | Pro | Gly | Leu | Pro | Gly | Phe | Ser |
|     |     |     |     |     |     |     |     | 130 |     |     |     | 135 |     |     | 140 |

Gly Asn Pro Gly Pro Pro Gly Leu Pro Gly Met Lys Gly Asp Pro Gly  
 145                      150                      155                      160  
 Glu Ile Leu Gly His Val Pro Gly Thr Leu Leu Lys Gly Glu Arg Gly  
                          165                      170                      175  
 Phe Pro Gly Ile Pro Gly Met Pro Gly Ser Pro Gly Leu Pro Gly Leu  
                          180                      185                      190  
 Gln Gly Pro Val Gly Pro Pro Gly Phe Thr Gly Pro Pro Gly Pro Pro  
                          195                      200                      205  
 Gly Pro Pro Gly Pro Pro Gly Glu Lys Gly Gln Met Gly Ser Ser Phe  
                          210                      215                      220  
 Gln Gly Pro Lys Gly Asp Lys Gly Glu Gln Gly Val Ser Gly Pro Pro  
 225                      230                      235                      240  
 Gly Val Pro Gly Gln Ala Gln Val Lys Glu Lys Gly Asp Phe Ala Pro  
                          245                      250                      255  
 Thr Gly Glu Lys Gly Gln Lys Gly Glu Pro Gly Phe Pro Gly Val Pro  
                          260                      265                      270  
 Gly Tyr Gly Glu Lys Gly Glu Pro Gly Lys Gln Gly Pro Arg Gly Lys  
                          275                      280                      285  
 Pro Gly Lys Asp Gly Glu Lys Gly Glu Arg Gly Ser Pro Gly Ile Pro  
                          290                      295                      300  
 Gly Asp Ser Gly Tyr Pro Gly Leu Pro Gly Arg Gln Gly Pro Gln Gly  
 305                      310                      315                      320  
 Glu Lys Gly Glu Ala Gly Leu Pro Gly Pro Pro Gly Thr Val Ile Gly  
                          325                      330                      335  
 Thr Met Pro Leu Gly Glu Lys Gly Asp Arg Gly Tyr Pro Gly Ala Pro  
                          340                      345                      350  
 Gly Leu Arg Gly Glu Pro Gly Pro Lys Gly Phe Pro Gly Thr Pro Gly  
                          355                      360                      365  
 Gln Pro Gly Pro Pro Gly Phe Pro Thr Pro Gly Gln Ala Gly Ala Pro

|   |     |     |
|---|-----|-----|
| 370   | 375 | 380 |
| Gly Phe Pro Gly Glu Arg Gly Glu Lys Gly Asp Gln Gly Phe Pro Gly |     |     |
| 385   | 390 | 395 |
| Val Ser Leu Pro Gly Pro Ser Gly Arg Asp Gly Ala Pro Gly Pro Pro |     | 400 |
| 405   | 410 | 415 |
| Gly Pro Pro Gly Pro Pro Gly Gln Pro Gly His Thr Asn Gly Ile Val |     |     |
| 420   | 425 | 430 |
| Glu Cys Gln Pro Gly Pro Pro Gly Asp Gln Gly Pro Pro Gly Thr Pro |     |     |
| 435   | 440 | 445 |
| Gly Gln Pro Gly Leu Thr Gly Glu Val Gly Gln Lys Gly Gln Lys Gly |     |     |
| 450   | 455 | 460 |
| Glu Ser Cys Leu Ala Cys Asp Thr Glu Gly Leu Arg Gly Pro Pro Gly |     |     |
| 465   | 470 | 475 |
| Pro Gln Gly Pro Pro Gly Glu Ile Gly Phe Pro Gly Gln Pro Gly Ala |     |     |
| 485   | 490 | 495 |
| Lys Gly Asp Arg Gly Leu Pro Gly Arg Asp Gly Leu Glu Gly Leu Pro |     |     |
| 500   | 505 | 510 |
| Gly Pro Gln Gly Ser Pro Gly Leu Ile Gly Gln Pro Gly Ala Lys Gly |     |     |
| 515   | 520 | 525 |
| Glu Pro Gly Glu Ile Phe Phe Asp Met Arg Leu Lys Gly Asp Lys Gly |     |     |
| 530   | 535 | 540 |
| Asp Pro Gly Phe Pro Gly Gln Pro Gly Met Pro Gly Arg Ala Gly Thr |     |     |
| 545   | 550 | 555 |
| Pro Gly Arg Asp Gly His Pro Gly Leu Pro Gly Pro Lys Gly Ser Pro |     |     |
| 565   | 570 | 575 |
| Gly Ser Ile Gly Leu Lys Gly Glu Arg Gly Pro Pro Gly Gly Val Gly |     |     |
| 580   | 585 | 590 |
| Phe Pro Gly Ser Arg Gly Asp Ile Gly Pro Pro Gly Pro Pro Gly Val |     |     |
| 595   | 600 | 605 |



Gly Pro Ile Gly Pro Val Gly Glu Lys Gly Gln Ala Gly Phe Pro Gly  
 610 615 620  
 Gly Pro Gly Ser Pro Gly Leu Pro Gly Pro Lys Gly Glu Ala Gly Lys  
 625 630 635 640  
 Val Val Pro Leu Pro Gly Pro Pro Gly Ala Ala Gly Leu Pro Gly Ser  
 645 650 655  
 Pro Gly Phe Pro Gly Pro Gln Gly Asp Arg Gly Phe Pro Gly Thr Pro  
 660 665 670  
 Gly Arg Pro Gly Ile Pro Gly Glu Lys Gly Ala Val Gly Gln Pro Gly  
 675 680 685  
 Ile Gly Phe Pro Gly Leu Pro Gly Pro Lys Gly Val Asp Gly Leu Pro  
 690 695 700  
 Gly Glu Ile Gly Arg Pro Gly Ser Pro Gly Arg Pro Gly Phe Asn Gly  
 705 710 715 720  
 Leu Pro Gly Asn Pro Gly Pro Gln Gly Gln Lys Gly Glu Pro Gly Ile  
 725 730 735  
 Gly Leu Pro Gly Leu Lys Gly Gln Pro Gly Leu Pro Gly Ile Pro Gly  
 740 745 750  
 Thr Pro Gly Glu Lys Gly Ser Ile Gly Gly Pro Gly Val Pro Gly Glu  
 755 760 765  
 Gln Gly Leu Thr Gly Pro Pro Gly Leu Gln Gly Ile Arg Gly Asp Pro  
 770 775 780  
 Gly Pro Pro Gly Val Gln Gly Pro Ala Gly Pro Pro Gly Val Pro Gly  
 785 790 795 800  
 Ile Gly Pro Pro Gly Ala Met Gly Pro Pro Gly Gly Glu Gly Pro Pro  
 805 810 815  
 Gly Ser Ser Gly Pro Pro Gly Ile Lys Gly Glu Lys Gly Phe Pro Gly  
 820 825 830  
 Phe Pro Gly Leu Asp Met Pro Gly Pro Lys Gly Asp Lys Gly Ser Gln

|   |      |      |
|---|------|------|
| 835   | 840  | 845  |
| Gly Leu Pro Gly Leu Thr Gly Gln Ser Gly Leu Pro Gly Leu Pro Gly |      |      |
| 850   | 855  | 860  |
| Gln Gln Gly Thr Pro Gly Val Pro Gly Phe Pro Gly Ser Lys Gly Glu |      |      |
| 865   | 870  | 875  |
| Met Gly Val Met Gly Thr Pro Gly Gln Pro Gly Ser Pro Gly Pro Ala |      | 880  |
| 885   | 890  | 895  |
| Gly Thr Pro Gly Leu Pro Gly Glu Lys Gly Asp His Gly Leu Pro Gly |      |      |
| 900   | 905  | 910  |
| Ser Ser Gly Pro Arg Gly Asp Pro Gly Phe Lys Gly Asp Lys Gly Asp |      |      |
| 915   | 920  | 925  |
| Val Gly Leu Pro Gly Met Pro Gly Ser Met Glu His Val Asp Met Gly |      |      |
| 930   | 935  | 940  |
| Ser Met Lys Gly Gln Lys Gly Asp Gln Gly Glu Lys Gly Gln Ile Gly |      |      |
| 945   | 950  | 955  |
| Pro Thr Gly Asp Lys Gly Ser Arg Gly Asp Pro Gly Thr Pro Gly Val |      | 960  |
| 965   | 970  | 975  |
| Pro Gly Lys Asp Gly Gln Ala Gly His Pro Gly Gln Pro Gly Pro Lys |      |      |
| 980   | 985  | 990  |
| Gly Asp Pro Gly Leu Ser Gly Thr Pro Gly Ser Pro Gly Leu Pro Gly |      |      |
| 995   | 1000 | 1005 |
| Pro Lys Gly Ser Val Gly Gly Met Gly Leu Pro Gly Ser Pro Gly Glu |      |      |
| 1010  | 1015 | 1020 |
| Lys Gly Val Pro Gly Ile Pro Gly Ser Gln Gly Val Pro Gly Ser Pro |      |      |
| 025   | 1030 | 1035 |
| Gly Glu Lys Gly Ala Lys Gly Glu Lys Gly Gln Ser Gly Leu Pro Gly |      | 1040 |
| 1045  | 1050 | 1055 |
| Ile Gly Ile Pro Gly Arg Pro Gly Asp Lys Gly Asp Gln Gly Leu Ala |      |      |
| 1060  | 1065 | 1070 |

Gly Phe Pro Gly Ser Pro Gly Glu Lys Gly Glu Lys Gly Ser Ala Gly  
 1075 1080 1085  
 Thr Pro Gly Met Pro Gly Ser Pro Gly Pro Arg Gly Ser Pro Gly Asn  
 1090 1095 1100  
 Ile Gly His Pro Gly Ser Pro Gly Leu Pro Gly Glu Lys Gly Asp Lys  
 1105 1110 1115 1120  
 Gly Leu Pro Gly Leu Asp Gly Val Pro Gly Val Lys Gly Glu Ala Gly  
 1125 1130 1135  
 Leu Pro Gly Thr Pro Gly Pro Thr Gly Pro Ala Gly Gln Lys Gly Glu  
 1140 1145 1150  
 Pro Gly Ser Asp Gly Ile Pro Gly Ser Ala Gly Glu Lys Gly Glu Gln  
 1155 1160 1165  
 Gly Val Pro Gly Arg Gly Phe Pro Gly Phe Pro Gly Ser Lys Gly Asp  
 1170 1175 1180  
 Lys Gly Ser Lys Gly Glu Val Gly Phe Pro Gly Leu Ala Gly Ser Pro  
 1185 1190 1195 1200  
 Gly Ile Pro Gly Val Lys Gly Glu Gln Gly Phe Met Gly Pro Pro Gly  
 1205 1210 1215  
 Pro Gln Gly Gln Pro Gly Leu Pro Gly Thr Pro Gly His Pro Val Glu  
 1220 1225 1230  
 Gly Pro Lys Gly Asp Arg Gly Pro Gln Gly Gln Pro Gly Leu Pro Gly  
 1235 1240 1245  
 His Pro Gly Pro Met Gly Pro Pro Gly Phe Pro Gly Ile Asn Gly Pro  
 1250 1255 1260  
 Lys Gly Asp Lys Gly Asn Gln Gly Trp Pro Gly Ala Pro Gly Val Pro  
 1265 1270 1275 1280  
 Gly Pro Lys Gly Asp Pro Gly Phe Gln Gly Met Pro Gly Ile Gly Gly  
 1285 1290 1295  
 Ser Pro Gly Ile Thr Gly Ser Lys Gly Asp Met Gly Leu Pro Gly Val

|   |      |      |
|---|------|------|
| 1300  | 1305 | 1310 |
| Pro Gly Phe Gln Gly Gln Lys Gly Leu Pro Gly Leu Gln Gly Val Lys |      |      |
| 1315  | 1320 | 1325 |
| Gly Asp Gln Gly Asp Gln Gly Val Pro Gly Pro Lys Gly Leu Gln Gly |      |      |
| 1330  | 1335 | 1340 |
| Pro Pro Gly Pro Pro Gly Pro Tyr Asp Val Ile Lys Gly Glu Pro Gly |      |      |
| 345   | 1350 | 1355 |
|   |      | 1360 |
| Leu Pro Gly Pro Glu Gly Pro Pro Gly Leu Lys Gly Leu Gln Gly Pro |      |      |
| 1365  | 1370 | 1375 |
| Pro Gly Pro Lys Gly Gln Gln Gly Val Thr Gly Ser Val Gly Leu Pro |      |      |
| 1380  | 1385 | 1390 |
| Gly Pro Pro Gly Val Pro Gly Phe Asp Gly Ala Pro Gly Gln Lys Gly |      |      |
| 1395  | 1400 | 1405 |
| Glu Thr Gly Pro Phe Gly Pro Pro Gly Pro Arg Gly Phe Pro Gly Pro |      |      |
| 1410  | 1415 | 1420 |
| Pro Gly Pro Asp Gly Leu Pro Gly Ser Met Gly Pro Pro Gly Thr Pro |      |      |
| 425   | 1430 | 1435 |
|   |      | 1440 |
| Ser Val Asp His Gly Phe Leu Val Thr Arg His Ser Gln Thr Thr Asp |      |      |
| 1445  | 1450 | 1455 |
| Asp Pro Leu Cys Pro Pro Gly Thr Lys Ile Leu Tyr His Gly Tyr Ser |      |      |
| 1460  | 1465 | 1470 |
| Leu Leu Tyr Val Gln Gly Asn Glu Arg Ala His Gly Gln Asp Leu Gly |      |      |
| 1475  | 1480 | 1485 |
| Thr Ala Gly Ser Cys Leu Arg Lys Phe Ser Thr Met Pro Phe Leu Phe |      |      |
| 1490  | 1495 | 1500 |
| Cys Asn Ile Asn Asn Val Cys Asn Phe Ala Ser Arg Asn Asp Tyr Ser |      |      |
| 505   | 1510 | 1515 |
|   |      | 1520 |
| Tyr Trp Leu Ser Thr Pro Glu Pro Met Pro Met Ser Met Ala Pro Ile |      |      |
| 1525  | 1530 | 1535 |

Ser Gly Asp Asn Ile Arg Pro Phe Ile Ser Arg Cys Ala Val Cys Glu  
 1540 1545 1550  
 Ala Pro Ala Met Val Met Ala Val His Ser Gln Thr Ile Gln Ile Pro  
 1555 1560 1565  
 Gln Cys Pro Asn Gly Trp Ser Ser Leu Trp Ile Gly Tyr Ser Phe Val  
 1570 1575 1580  
 Met His Thr Ser Ala Gly Ala Glu Gly Ser Gly Gln Ala Leu Ala Ser  
 585 1590 1595 1600  
 Pro Gly Ser Cys Leu Glu Glu Phe Arg Ser Ala Pro Phe Ile Glu Cys  
 1605 1610 1615  
 His Gly Arg Gly Thr Cys Asn Tyr Tyr Ala Asn Ala Tyr Ser Phe Trp  
 1620 1625 1630  
 Leu Ala Thr Ile Glu Arg Ser Glu Met Phe Lys Lys Pro Thr Pro Ser  
 1635 1640 1645  
 Thr Leu Lys Ala Gly Glu Leu Arg Thr His Val Ser Arg Cys Gln Val  
 1650 1655 1660  
 Cys Met Arg Arg Thr  
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<210> 934

<211> 569

<212> DNA

<213> Mus musculus

<400> 934

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 tcctgcaccc acgatacttc ggtccaaact tgctcaacac ggtgaagcag aagctgttta 180  
 ccgaggtgga ggggacctgc actgggaaat atggctttgt aattgctgtc accaccatcg 240

acaatatiggtgctgggtg atccagccag gccgaggttt tgttctttat ccagtgaat 300  
 acaaagctat tgttttccgg ccctttaag gtgaagtgtt ggatgctgtg gtcactcagg 360  
 tcaacaaggt tggacttttc acagaaattg ggcctatgtc ttgcttcac tctcgacatt 420  
 ccatcccttc agagaaggag ttgatccag attcaaacc gccttgctat aagaccatgg 480  
 acgaggacat tgtgattcag caggacgatg agatacgctt gaagattgta ggcacgcgtg 540  
 tagacaagaa tgacatTTTT gcagtggct 569

<210> 935

<211> 2121

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (48).. (1553)

<400> 935

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 Met Ala Ala  
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 gcc agt gtg act tcc cct ggc tcc cta gaa ctg cta cag cct ggc ttc 104  
 Ala Ser Val Thr Ser Pro Gly Ser Leu Glu Leu Leu Gln Pro Gly Phe  
 5 10 15  
 tcc aag acc ctc ctg ggg acc agg tta gaa gcc aag tac ctc tgt tca 152  
 Ser Lys Thr Leu Leu Gly Thr Arg Leu Glu Ala Lys Tyr Leu Cys Ser  
 20 25 30 35  
 gcc tgc aaa aac atc ctg cgg agg cct ttc cag gcc cag tgt ggg cac 200  
 Ala Cys Lys Asn Ile Leu Arg Arg Pro Phe Gln Ala Gln Cys Gly His  
 40 45 50

cgc tac tgc tcc ttc tgc ctg acc agc atc ctc agc tct ggg ccc cag 248  
 Arg Tyr Cys Ser Phe Cys Leu Thr Ser Ile Leu Ser Ser Gly Pro Gln  
           55                               60                               65  
 aac tgt gct gcc tgt gtc tat gaa ggc ctg tat gaa gaa ggc att tct 296  
 Asn Cys Ala Ala Cys Val Tyr Glu Gly Leu Tyr Glu Glu Gly Ile Ser  
           70                               75                               80  
 att tta gag agt agt tcg gcc ttt cca gat aac gct gcc cgc aga gag 344  
 Ile Leu Glu Ser Ser Ser Ala Phe Pro Asp Asn Ala Ala Arg Arg Glu  
           85                               90                               95  
 gtg gag agc ctg cca gct gtc tgt ccc aat gat gga tgc act tgg aag 392  
 Val Glu Ser Leu Pro Ala Val Cys Pro Asn Asp Gly Cys Thr Trp Lys  
 100                               105                               110                               115  
 ggg acc ttg aaa gaa tac gag agc tgc cac gaa gga ctt tgc cca ttc 440  
 Gly Thr Leu Lys Glu Tyr Glu Ser Cys His Glu Gly Leu Cys Pro Phe  
           120                               125                               130  
 ctg ctg acg gag tgt cct gca tgt aaa ggc ctg gtc cgc ctc agc gag 488  
 Leu Leu Thr Glu Cys Pro Ala Cys Lys Gly Leu Val Arg Leu Ser Glu  
           135                               140                               145  
 aag gag cac cac act gag cag gaa tgc ccc aaa agg agc ctg agc tgc 536  
 Lys Glu His His Thr Glu Gln Glu Cys Pro Lys Arg Ser Leu Ser Cys  
           150                               155                               160  
 cag cac tgc aga gca ccc tgt agc cac gtg gac ctg gag gta cac tat 584  
 Gln His Cys Arg Ala Pro Cys Ser His Val Asp Leu Glu Val His Tyr  
           165                               170                               175  
 gag gtc tgc ccc aag ttt ccc tta acc tgt gat ggc tgt ggc aag aag 632  
 Glu Val Cys Pro Lys Phe Pro Leu Thr Cys Asp Gly Cys Gly Lys Lys  
 180                               185                               190                               195  
 aag atc cct cgg gag acg ttt cag gac cat gtt aga gca tgc agc aaa 680  
 Lys Ile Pro Arg Glu Thr Phe Gln Asp His Val Arg Ala Cys Ser Lys

|   |     |     |      |
|---|-----|-----|------|
| 200   | 205 | 210 |      |
| tgc cgg gtt ctc tgc aga ttc cac acc gtt ggc tgt tca gag atg gtg |     |     | 728  |
| Cys Arg Val Leu Cys Arg Phe His Thr Val Gly Cys Ser Glu Met Val |     |     |      |
| 215   | 220 | 225 |      |
| gag act gag aac ctg cag gat cat gag ctg cag cgg cta cgg gaa cac |     |     | 776  |
| Glu Thr Glu Asn Leu Gln Asp His Glu Leu Gln Arg Leu Arg Glu His |     |     |      |
| 230   | 235 | 240 |      |
| cta gcc cta ctg ctg agc tca ttc ttg gag gcc caa gcc tct cca gga |     |     | 824  |
| Leu Ala Leu Leu Leu Ser Ser Phe Leu Glu Ala Gln Ala Ser Pro Gly |     |     |      |
| 245   | 250 | 255 |      |
| acc ttg aac cag gtg ggg cca gag cta ctc cag cgg tgc cag att ttg |     |     | 872  |
| Thr Leu Asn Gln Val Gly Pro Glu Leu Leu Gln Arg Cys Gln Ile Leu |     |     |      |
| 260   | 265 | 270 | 275  |
| gag cag aag ata gca acc ttt gag aac att gtc tgc gtc ttg aac cgt |     |     | 920  |
| Glu Gln Lys Ile Ala Thr Phe Glu Asn Ile Val Cys Val Leu Asn Arg |     |     |      |
| 280   | 285 | 290 |      |
| gaa gta gag agg gta gca gtg act gca gag gct tgt agc cgg cag cac |     |     | 968  |
| Glu Val Glu Arg Val Ala Val Thr Ala Glu Ala Cys Ser Arg Gln His |     |     |      |
| 295   | 300 | 305 |      |
| cgg cta gac cag gac aag att gag gcc ctg agt aac aag gtg caa cag |     |     | 1016 |
| Arg Leu Asp Gln Asp Lys Ile Glu Ala Leu Ser Asn Lys Val Gln Gln |     |     |      |
| 310   | 315 | 320 |      |
| ctg gag agg agc atc ggc ctc aag gac ctg gcc atg gct gac ctg gag |     |     | 1064 |
| Leu Glu Arg Ser Ile Gly Leu Lys Asp Leu Ala Met Ala Asp Leu Glu |     |     |      |
| 325   | 330 | 335 |      |
| cag aag gtc tcc gag ttg gaa gta tcc acc tat gat ggg gtc ttc atc |     |     | 1112 |
| Gln Lys Val Ser Glu Leu Glu Val Ser Thr Tyr Asp Gly Val Phe Ile |     |     |      |
| 340   | 345 | 350 | 355  |
| tgg aag atc tct gac ttc acc aga aag cgt cag gaa gcc gta gct ggc |     |     | 1160 |



Trp Lys Ile Ser Asp Phe Thr Arg Lys Arg Gln Glu Ala Val Ala Gly  
 360 365 370  
 cgg aca cca gct atc ttc tcc cca gcc ttc tac aca agc aga tat ggc 1208  
 Arg Thr Pro Ala Ile Phe Ser Pro Ala Phe Tyr Thr Ser Arg Tyr Gly  
 375 380 385  
 tac aag atg tgt cta cga gtc tac ttg aat ggc gac ggc act ggg cgg 1256  
 Tyr Lys Met Cys Leu Arg Val Tyr Leu Asn Gly Asp Gly Thr Gly Arg  
 390 395 400  
 gga act cat ctg tct ctc ttc ttc gtg gtg atg aaa ggc ccc aat gat 1304  
 Gly Thr His Leu Ser Leu Phe Phe Val Val Met Lys Gly Pro Asn Asp  
 405 410 415  
 gct ctg ttg cag tgg cct ttt aat cag aag gta aca ttg atg ttg ctg 1352  
 Ala Leu Leu Gln Trp Pro Phe Asn Gln Lys Val Thr Leu Met Leu Leu  
 420 425 430 435  
 gac cat aac aac cgg gag cat gtg atc gac gca ttc agg ccc gat gta 1400  
 Asp His Asn Asn Arg Glu His Val Ile Asp Ala Phe Arg Pro Asp Val  
 440 445 450  
 acc tcg tcc tcc ttc cag agg cct gtc agt gac atg aac atc gcc agt 1448  
 Thr Ser Ser Ser Phe Gln Arg Pro Val Ser Asp Met Asn Ile Ala Ser  
 455 460 465  
 ggc tgc ccc ctc ttc tgc cct gtg tcc aag atg gag gcc aag aat tcc 1496  
 Gly Cys Pro Leu Phe Cys Pro Val Ser Lys Met Glu Ala Lys Asn Ser  
 470 475 480  
 tat gtg cgg gat gat gcg atc ttc atc aaa gct att gtg gac cta aca 1544  
 Tyr Val Arg Asp Asp Ala Ile Phe Ile Lys Ala Ile Val Asp Leu Thr  
 485 490 495  
 gga ctc tag ccaccctgc taagaatagc agctcagtga ggagctgtca 1593  
 Gly Leu  
 500

cattaggcca gccaggccct gccacacacg ggtgggcagg ctgtgtgtaa atgctgggga 1653  
 gggcctc agc ctagagccaa tcaccatcac acagaaaggc aggaagaagc ctccagttgg 1713  
 ccttcagctg gcaaactgag ttggacggtc cactgagctc aagggcctgg tggagcccg 1773  
 tggggagcctt ctgagcttct caataggaaa gctcctgctg tctcctctgt ctggggaagg 1833  
 gagagacctg taggtgggtg ctgagaaagg gcctctccag agagagctc aagagctgca 1893  
 gcaggagcaa agtgactggc cttccccacc ccctccttgg gaaaagaggt agcggctaca 1953  
 caggagaagg catgcgcctg cagggtgtag cccaagagag aagctctctg agacataggc 2013  
 cctcactgga gaaggccctg cctgggcctg acagccttgc cagggtggcct gtatggggga 2073  
 gaagtgatta aatgttgaga tgtcacacga caaaaaaaaa aaaaaaaaa 2121

<210> 936

<211> 501

<212> PRT

<213> Mus musculus

<400> 936

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Ala | Ser | Val | Thr | Ser | Pro | Gly | Ser | Leu | Glu | Leu | Leu | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Gly | Phe | Ser | Lys | Thr | Leu | Leu | Gly | Thr | Arg | Leu | Glu | Ala | Lys | Tyr |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |
| Leu | Cys | Ser | Ala | Cys | Lys | Asn | Ile | Leu | Arg | Arg | Pro | Phe | Gln | Ala | Gln |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Cys | Gly | His | Arg | Tyr | Cys | Ser | Phe | Cys | Leu | Thr | Ser | Ile | Leu | Ser | Ser |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |
| Gly | Pro | Gln | Asn | Cys | Ala | Ala | Cys | Val | Tyr | Glu | Gly | Leu | Tyr | Glu | Glu |
|     |     |     | 65  |     |     | 70  |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Ile | Ser | Ile | Leu | Glu | Ser | Ser | Ser | Ala | Phe | Pro | Asp | Asn | Ala | Ala |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg | Arg | Glu | Val | Glu | Ser | Leu | Pro | Ala | Val | Cys | Pro | Asn | Asp | Gly | Cys |

|   |     |     |
|---|-----|-----|
| 100   | 105 | 110 |
| Thr Trp Lys Gly Thr Leu Lys Glu Tyr Glu Ser Cys His Glu Gly Leu |     |     |
| 115   | 120 | 125 |
| Cys Pro Phe Leu Leu Thr Glu Cys Pro Ala Cys Lys Gly Leu Val Arg |     |     |
| 130   | 135 | 140 |
| Leu Ser Glu Lys Glu His His Thr Glu Gln Glu Cys Pro Lys Arg Ser |     |     |
| 145   | 150 | 155 |
| Leu Ser Cys Gln His Cys Arg Ala Pro Cys Ser His Val Asp Leu Glu |     |     |
| 165   | 170 | 175 |
| Val His Tyr Glu Val Cys Pro Lys Phe Pro Leu Thr Cys Asp Gly Cys |     |     |
| 180   | 185 | 190 |
| Gly Lys Lys Lys Ile Pro Arg Glu Thr Phe Gln Asp His Val Arg Ala |     |     |
| 195   | 200 | 205 |
| Cys Ser Lys Cys Arg Val Leu Cys Arg Phe His Thr Val Gly Cys Ser |     |     |
| 210   | 215 | 220 |
| Glu Met Val Glu Thr Glu Asn Leu Gln Asp His Glu Leu Gln Arg Leu |     |     |
| 225   | 230 | 235 |
| Arg Glu His Leu Ala Leu Leu Leu Ser Ser Phe Leu Glu Ala Gln Ala |     |     |
| 245   | 250 | 255 |
| Ser Pro Gly Thr Leu Asn Gln Val Gly Pro Glu Leu Leu Gln Arg Cys |     |     |
| 260   | 265 | 270 |
| Gln Ile Leu Glu Gln Lys Ile Ala Thr Phe Glu Asn Ile Val Cys Val |     |     |
| 275   | 280 | 285 |
| Leu Asn Arg Glu Val Glu Arg Val Ala Val Thr Ala Glu Ala Cys Ser |     |     |
| 290   | 295 | 300 |
| Arg Gln His Arg Leu Asp Gln Asp Lys Ile Glu Ala Leu Ser Asn Lys |     |     |
| 305   | 310 | 315 |
| Val Gln Gln Leu Glu Arg Ser Ile Gly Leu Lys Asp Leu Ala Met Ala |     |     |
| 325   | 330 | 335 |

Asp Leu Glu Gln Lys Val Ser Glu Leu Glu Val Ser Thr Tyr Asp Gly  
                   340                          345                          350  
 Val Phe Ile Trp Lys Ile Ser Asp Phe Thr Arg Lys Arg Gln Glu Ala  
                   355                          360                          365  
 Val Ala Gly Arg Thr Pro Ala Ile Phe Ser Pro Ala Phe Tyr Thr Ser  
                   370                          375                          380  
 Arg Tyr Gly Tyr Lys Met Cys Leu Arg Val Tyr Leu Asn Gly Asp Gly  
 385                          390                          395                          400  
 Thr Gly Arg Gly Thr His Leu Ser Leu Phe Phe Val Val Met Lys Gly  
                   405                          410                          415  
 Pro Asn Asp Ala Leu Leu Gln Trp Pro Phe Asn Gln Lys Val Thr Leu  
                   420                          425                          430  
 Met Leu Leu Asp His Asn Asn Arg Glu His Val Ile Asp Ala Phe Arg  
                   435                          440                          445  
 Pro Asp Val Thr Ser Ser Ser Phe Gln Arg Pro Val Ser Asp Met Asn  
                   450                          455                          460  
 Ile Ala Ser Gly Cys Pro Leu Phe Cys Pro Val Ser Lys Met Glu Ala  
 465                          470                          475                          480  
 Lys Asn Ser Tyr Val Arg Asp Asp Ala Ile Phe Ile Lys Ala Ile Val  
                   485                          490                          495  
 Asp Leu Thr Gly Leu  
                   500

<210> 937

<211> 510

<212> DNA

<213> Mus musculus

<400> 937

ggctcaaaa ttctgtgaca gatttttggt caagttgatt ccattaaaaa gtactgattt 60  
 tgaaaactaa taacttaaaa ctgccacaca catagaaaat ggtccacaac attctttcct 120  
 tctgaagggt ttacgatgca ttgttatcat taaccagtct ttactattta aacttagatg 180  
 gccaatfgag acaaacagtt ctgagaccgt tcttccacca ctgattaaga ctgggggtggc 240  
 aggtgttatg ggtaatatc atttagcctt ctgagctttc tgtgcagaca tggtgacata 300  
 gccagctcca gcagccttct tgtccacagc ttgatgaca ccacagcaac tgtctgcctc 360  
 atgtcacgaa cagcaaagcg accaagtgga gggtagtcag atcagctctc aacacacatg 420  
 ggcttgcagt ggacatatta acaatgggag catcgagac ttcaggaact tggggccatc 480  
 tccaggtttt accggatcgc gattgtcttt 510

<210> 938

<211> 1031

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (97).. (762)

<400> 938

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 aactccgcgc tgggctaggg aaccggctcc ggtggg atg gag gcg ggc ggc gtg 114  
 Met Glu Ala Gly Gly Val  
 1 5  
 gca gac tct ttc ctt tct agt gcc tgc gtg ctc ttc acc ctg ggc atg 162  
 Ala Asp Ser Phe Leu Ser Ser Ala Cys Val Leu Phe Thr Leu Gly Met  
 10 15 20  
 ttc tcc act ggc ctc tcg gac ctc agg cat atg cag agg aca cgg agc 210  
 Phe Ser Thr Gly Leu Ser Asp Leu Arg His Met Gln Arg Thr Arg Ser

|   |     |     |     |
|---|-----|-----|-----|
| 25  | 30  | 35  |     |
| gtg gac aac atc cag ttc ctg cct ttt ctc acc acg gat gtc aac aac |     |     | 258 |
| Val Asp Asn Ile Gln Phe Leu Pro Phe Leu Thr Thr Asp Val Asn Asn |     |     |     |
| 40  | 45  | 50  |     |
| ctg agc tgg ctg agt tac gga gtc ttg aag gga gat ggg acc ctt atc |     |     | 306 |
| Leu Ser Trp Leu Ser Tyr Gly Val Leu Lys Gly Asp Gly Thr Leu Ile |     |     |     |
| 55  | 60  | 65  | 70  |
| atc gtc aat agc gtg ggg gcc gtg ctt cag act ctt tat atc ctg gca |     |     | 354 |
| Ile Val Asn Ser Val Gly Ala Val Leu Gln Thr Leu Tyr Ile Leu Ala |     |     |     |
| 75  | 80  | 85  |     |
| tat ctg cac tac agt cct cag aag cat ggt gtg ctc ctg cag acg gca |     |     | 402 |
| Tyr Leu His Tyr Ser Pro Gln Lys His Gly Val Leu Leu Gln Thr Ala |     |     |     |
| 90  | 95  | 100 |     |
| acc ctg ctg gct gtc ctt ctc ctg ggt tat ggc tac ttt tgg ctt ctg |     |     | 450 |
| Thr Leu Leu Ala Val Leu Leu Leu Gly Tyr Gly Tyr Phe Trp Leu Leu |     |     |     |
| 105   | 110 | 115 |     |
| gtg ccg gac ctt gag gcc cgg ctt cag cag cta ggc ctc ttc tgt agc |     |     | 498 |
| Val Pro Asp Leu Glu Ala Arg Leu Gln Gln Leu Gly Leu Phe Cys Ser |     |     |     |
| 120   | 125 | 130 |     |
| gtc ttt acc atc agc atg tac ctc tcc cca ctg gct gat ttg gcc aag |     |     | 546 |
| Val Phe Thr Ile Ser Met Tyr Leu Ser Pro Leu Ala Asp Leu Ala Lys |     |     |     |
| 135   | 140 | 145 | 150 |
| atc gtt cag act aaa tca acc cag cgc ctc tcc ttc tcc ctg acc att |     |     | 594 |
| Ile Val Gln Thr Lys Ser Thr Gln Arg Leu Ser Phe Ser Leu Thr Ile |     |     |     |
| 155   | 160 | 165 |     |
| gcc acg ctc ttt tgc tcc gcc tct tgg tct att tac ggg ttt cgc ctc |     |     | 642 |
| Ala Thr Leu Phe Cys Ser Ala Ser Trp Ser Ile Tyr Gly Phe Arg Leu |     |     |     |
| 170   | 175 | 180 |     |
| cga gac cca tac atc gcg gtg ccc aac ctt cca gga atc ctc acc agc |     |     | 690 |

Arg Asp Pro Tyr Ile Ala Val Pro Asn Leu Pro Gly Ile Leu Thr Ser  
 185 190 195  
 tta atc cgc ctc ggg ctt ttc tgc aag tac cct cca gag caa gac agg 738  
 Leu Ile Arg Leu Gly Leu Phe Cys Lys Tyr Pro Pro Glu Gln Asp Arg  
 200 205 210  
 aag tac cgc ctc ctg cag acc tga cccagggcac ccgagtgcca actggatacc 792  
 Lys Tyr Arg Leu Leu Gln Thr  
 215 220  
 aaacagagct cctgtttctg ctggtccttg tgaccagttc catggatgca ataggttgtg 852  
 agaaaaagat gactttgaaa cttaaaggac caaagatctt tccttagatc agataggacc 912  
 tgigggatga aatcacattt ttacaggaga tcatcttttc tcatttcgga ggctgaggtg 972  
 gtattagaat gtgccttaaa ataaactgtt cccacccct gaaaaaaaaa aaaaaaaaaa 1031

<210> 939

<211> 221

<212> PRT

<213> Mus musculus

<400> 939

Met Glu Ala Gly Gly Val Ala Asp Ser Phe Leu Ser Ser Ala Cys Val  
 1 5 10 15  
 Leu Phe Thr Leu Gly Met Phe Ser Thr Gly Leu Ser Asp Leu Arg His  
 20 25 30  
 Met Gln Arg Thr Arg Ser Val Asp Asn Ile Gln Phe Leu Pro Phe Leu  
 35 40 45  
 Thr Thr Asp Val Asn Asn Leu Ser Trp Leu Ser Tyr Gly Val Leu Lys  
 50 55 60  
 Gly Asp Gly Thr Leu Ile Ile Val Asn Ser Val Gly Ala Val Leu Gln  
 65 70 75 80

Thr Leu Tyr Ile Leu Ala Tyr Leu His Tyr Ser Pro Gln Lys His Gly  
                             85                            90                            95  
 Val Leu Leu Gln Thr Ala Thr Leu Leu Ala Val Leu Leu Leu Gly Tyr  
                             100                            105                            110  
 Gly Tyr Phe Trp Leu Leu Val Pro Asp Leu Glu Ala Arg Leu Gln Gln  
                             115                            120                            125  
 Leu Gly Leu Phe Cys Ser Val Phe Thr Ile Ser Met Tyr Leu Ser Pro  
                             130                            135                            140  
 Leu Ala Asp Leu Ala Lys Ile Val Gln Thr Lys Ser Thr Gln Arg Leu  
                             145                            150                            155                            160  
 Ser Phe Ser Leu Thr Ile Ala Thr Leu Phe Cys Ser Ala Ser Trp Ser  
                             165                            170                            175  
 Ile Tyr Gly Phe Arg Leu Arg Asp Pro Tyr Ile Ala Val Pro Asn Leu  
                             180                            185                            190  
 Pro Gly Ile Leu Thr Ser Leu Ile Arg Leu Gly Leu Phe Cys Lys Tyr  
                             195                            200                            205  
 Pro Pro Glu Gln Asp Arg Lys Tyr Arg Leu Leu Gln Thr  
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<210> 940

<211> 2596

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (126).. (2009)

<400> 940



cgggcgcgca ccttgaacct agaaccggag ccgcgaaccc actgacccca gcacccacgc 60  
 agtggcgcag tctttiaccca gcgcgagggg cggagggacc gagtgtccgc aaacagactg 120  
 ggacg atg tta gcc ttt gct gcc aga acc gtg gta aaa ccc ctg ggc ctc 170

Met Leu Ala Phe Ala Ala Arg Thr Val Val Lys Pro Leu Gly Leu

1 5 10 15  
 ctc aag ccc tcc tcc ttg atg aag gtt tct ggt cgc ttc aag gcc cac 218  
 Leu Lys Pro Ser Ser Leu Met Lys Val Ser Gly Arg Phe Lys Ala His

20 25 30  
 caa gat gca ctg cca agg ctg cct gtg ccc cca ctt cag caa tcc ctg 266  
 Gln Asp Ala Leu Pro Arg Leu Pro Val Pro Pro Leu Gln Gln Ser Leu

35 40 45  
 gac tat tac ctc aag gca ctg cag ccc atc gtg agt gag gaa gaa tgg 314  
 Asp Tyr Tyr Leu Lys Ala Leu Gln Pro Ile Val Ser Glu Glu Glu Trp

50 55 60  
 gct cac acc aag caa ctg gtg gat gag ttt cag acc tca ggg ggc gta 362  
 Ala His Thr Lys Gln Leu Val Asp Glu Phe Gln Thr Ser Gly Gly Val

65 70 75  
 ggg gaa cgc tta cag aag gga ctg gag cgc agg gcc aag aaa atg gag 410  
 Gly Glu Arg Leu Gln Lys Gly Leu Glu Arg Arg Ala Lys Lys Met Glu

80 85 90 95  
 aac tgg ctg tcc gag tgg tgg ctc aag aca gcc tat ctc cag tta ccn 458  
 Asn Trp Leu Ser Glu Trp Trp Leu Lys Thr Ala Tyr Leu Gln Leu Xaa

100 105 110  
 gac aag cct gtg gtc atc tac tcc agc cca gga gtg atc ctg ccc aag 506  
 Asp Lys Pro Val Val Ile Tyr Ser Ser Pro Gly Val Ile Leu Pro Lys

115 120 125  
 cag gac ttt gtg gat cta cag ggt cag ctt cgg ttt gct gcc aaa ctc 554  
 Gln Asp Phe Val Asp Leu Gln Gly Gln Leu Arg Phe Ala Ala Lys Leu

130

135

140

|   |      |
|---|------|
| atc gag ggt gta ttg gat ttc aag tcc atg att gac aat gag acg ctg | 602  |
| Ile Glu Gly Val Leu Asp Phe Lys Ser Met Ile Asp Asn Glu Thr Leu |      |
| 145 150 155   |      |
| cca gtt gag ttc ctg gga gga cag ccg ctg tgc atg aac cag tat tat | 650  |
| Pro Val Glu Phe Leu Gly Gly Gln Pro Leu Cys Met Asn Gln Tyr Tyr |      |
| 160 165 170 175   |      |
| cag atc ctg tct tct tgc cgt gag ccc ggc ccc aag cag gac tca gtg | 698  |
| Gln Ile Leu Ser Ser Cys Arg Glu Pro Gly Pro Lys Gln Asp Ser Val |      |
| 180 185 190   |      |
| gtg aac ttc tta aag tca aag aga cca ccc acg cat ata acc gtg gtg | 746  |
| Val Asn Phe Leu Lys Ser Lys Arg Pro Pro Thr His Ile Thr Val Val |      |
| 195 200 205   |      |
| cat aac tac cag ttc ttc gag ctg gat gtg tac aac agt gac gga aca | 794  |
| His Asn Tyr Gln Phe Phe Glu Leu Asp Val Tyr Asn Ser Asp Gly Thr |      |
| 210 215 220   |      |
| ccg ctc acc tca gat cag atc ttt gtg cag cta gag aaa ata tgg aat | 842  |
| Pro Leu Thr Ser Asp Gln Ile Phe Val Gln Leu Glu Lys Ile Trp Asn |      |
| 225 230 235   |      |
| tcc tca ctg caa tcc aac aaa gag cct gtt ggc atc cta acc tcc aac | 890  |
| Ser Ser Leu Gln Ser Asn Lys Glu Pro Val Gly Ile Leu Thr Ser Asn |      |
| 240 245 250 255   |      |
| cac cga aac acc tgg gcc aag gcc tac aac aac ctc att aaa gac aaa | 938  |
| His Arg Asn Thr Trp Ala Lys Ala Tyr Asn Asn Leu Ile Lys Asp Lys |      |
| 260 265 270   |      |
| gtt aac cga gag tca gtg aac tcc ata cag aag agc atc ttc acc gtg | 986  |
| Val Asn Arg Glu Ser Val Asn Ser Ile Gln Lys Ser Ile Phe Thr Val |      |
| 275 280 285   |      |
| tgc ctg gac aag caa gtg cct aga gtc tca gat gat gtc tac cga aac | 1034 |
| Cys Leu Asp Lys Gln Val Pro Arg Val Ser Asp Asp Val Tyr Arg Asn |      |

|   |     |     |      |
|---|-----|-----|------|
| 290   | 295 | 300 |      |
| cac gta gca ggc cag atg cta cat ggt ggt ggt agc aag ttc aac agt |     |     | 1082 |
| His Val Ala Gly Gln Met Leu His Gly Gly Gly Ser Lys Phe Asn Ser |     |     |      |
| 305   | 310 | 315 |      |
| ggc aac cgc tgg ttt gac aag aca ctg cag ttc atc gtg gca gaa gac |     |     | 1130 |
| Gly Asn Arg Trp Phe Asp Lys Thr Leu Gln Phe Ile Val Ala Glu Asp |     |     |      |
| 320   | 325 | 330 | 335  |
| ggc tcc tgt ggg atg gtg tat gag cat gca gct gca gaa ggg ccc ccc |     |     | 1178 |
| Gly Ser Cys Gly Met Val Tyr Glu His Ala Ala Ala Glu Gly Pro Pro |     |     |      |
| 340   | 345 | 350 |      |
| ata gtt gca ctt gtg gac cat gtc atg gag tat aca aaa aag cct gag |     |     | 1226 |
| Ile Val Ala Leu Val Asp His Val Met Glu Tyr Thr Lys Lys Pro Glu |     |     |      |
| 355   | 360 | 365 |      |
| ctt gtg cgg tct cct atg gtg ccc ttg cca atg ccc aag aag ctg cgg |     |     | 1274 |
| Leu Val Arg Ser Pro Met Val Pro Leu Pro Met Pro Lys Lys Leu Arg |     |     |      |
| 370   | 375 | 380 |      |
| ttc aac atc aca cct gag atc aag aac gac ata gag aaa gcc aaa cag |     |     | 1322 |
| Phe Asn Ile Thr Pro Glu Ile Lys Asn Asp Ile Glu Lys Ala Lys Gln |     |     |      |
| 385   | 390 | 395 |      |
| aac ctc agc atc atg atc cag gac ctg gac atc atg atg ctg acg ttc |     |     | 1370 |
| Asn Leu Ser Ile Met Ile Gln Asp Leu Asp Ile Met Met Leu Thr Phe |     |     |      |
| 400   | 405 | 410 | 415  |
| cat cac ttt gga aag gac ttc ccc aag tcc gag aag cta agc cct gat |     |     | 1418 |
| His His Phe Gly Lys Asp Phe Pro Lys Ser Glu Lys Leu Ser Pro Asp |     |     |      |
| 420   | 425 | 430 |      |
| gcc ttc atc cag gta gcc ctg cag ctg gca tac tac agg atc tat ggg |     |     | 1466 |
| Ala Phe Ile Gln Val Ala Leu Gln Leu Ala Tyr Tyr Arg Ile Tyr Gly |     |     |      |
| 435   | 440 | 445 |      |
| cag gcg tgt gcc acg tat gaa agt gcc tct ctg cgc atg ttt cac ctg |     |     | 1514 |

Gln Ala Cys Ala Thr Tyr Glu Ser Ala Ser Leu Arg Met Phe His Leu  
           450                          455                          460  
 ggc cgc act gac acc atc cgc tca gcc tcc ata gac tcg ctg gcc ttt 1562  
 Gly Arg Thr Asp Thr Ile Arg Ser Ala Ser Ile Asp Ser Leu Ala Phe  
           465                          470                          475  
 gtc aaa ggc atg ggt gac tcc aca gtg ccg gag cag cag aag gtg gag 1610  
 Val Lys Gly Met Gly Asp Ser Thr Val Pro Glu Gln Gln Lys Val Glu  
 480                          485                          490                          495  
 ctg ctc cgg aag gct gtg cag gcc cac cga gcc tac act gac cgg gcc 1658  
 Leu Leu Arg Lys Ala Val Gln Ala His Arg Ala Tyr Thr Asp Arg Ala  
                           500                          505                          510  
 atc cga ggg gag gcc ttt gac cgg cac ctg ctg ggt ctg aag ctg cag 1706  
 Ile Arg Gly Glu Ala Phe Asp Arg His Leu Leu Gly Leu Lys Leu Gln  
                           515                          520                          525  
 gcc atc gag gac ctg gtc agc atg cct gac atc ttc atg gac acc tct 1754  
 Ala Ile Glu Asp Leu Val Ser Met Pro Asp Ile Phe Met Asp Thr Ser  
           530                          535                          540  
 tac gcc att gct atg cac ttc aac ctc tct acc agc cag gtc cct gcc 1802  
 Tyr Ala Ile Ala Met His Phe Asn Leu Ser Thr Ser Gln Val Pro Ala  
           545                          550                          555  
 aag aca gac tgt gtc atg ttc ttc gga cct gtg gtc cca gat ggt tat 1850  
 Lys Thr Asp Cys Val Met Phe Phe Gly Pro Val Val Pro Asp Gly Tyr  
 560                          565                          570                          575  
 ggc atc tgc tac aac ccc atg gag gcc cat atc aac ctc tcc gtg tca 1898  
 Gly Ile Cys Tyr Asn Pro Met Glu Ala His Ile Asn Leu Ser Val Ser  
                           580                          585                          590  
 gcc tac aac agc tgt gct gag acc aac gct gcc cgc atg gct cac tac 1946  
 Ala Tyr Asn Ser Cys Ala Glu Thr Asn Ala Ala Arg Met Ala His Tyr  
           595                          600                          605

ttg gag aaa gct ctg ctg gac atg cgc acc cta ctc cag aac cac ccc 1994  
 Leu Glu Lys Ala Leu Leu Asp Met Arg Thr Leu Leu Gln Asn His Pro

610

615

620

agg gcc aag ctc tga gccaggccc agacctgcca ctccacagc caaaccact 2049  
 Arg Ala Lys Leu

625

ttgggatgga cacttgccat ggctcacttc ctgggtccg tgccccagc ttgagccaga 2109  
 aaagcattct ctagcaaggc ccaacgtcca cacaagtgc ttccaggccc tgctcctaga 2169  
 cctgccggag tccatgtgca gggctgagtc cagaggctga acaagactac ggcccaggtt 2229  
 cccaatgtat catccactcc atgaacatg gagaagagag ccagtcacgc ccatcccttc 2289  
 tcacagcagg agccgggaag agttcctttc ctgagcctgg ccaatctctt gtcattcca 2349  
 cagccaggcc aaaatcgtc ttcatggta aatgcccaag gaccagcgtt gggaggatta 2409  
 tctatcagtg agggctctca acctcccat agctaagggt taagtcittg tagccaaagg 2469  
 gacatctgag gccagcctc caccagccca cctcaagggt ccatctccct gctgccacac 2529  
 tctggtgact ctgagcccc agacttattg ctccattca gtgtgattct tgctgcagtc 2589  
 atggtgg 2596

&lt;210&gt; 941

&lt;211&gt; 627

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 941

Met Leu Ala Phe Ala Ala Arg Thr Val Val Lys Pro Leu Gly Leu Leu

1

5

10

15

Lys Pro Ser Ser Leu Met Lys Val Ser Gly Arg Phe Lys Ala His Gln

20

25

30

Asp Ala Leu Pro Arg Leu Pro Val Pro Pro Leu Gln Gln Ser Leu Asp

35

40

45

Tyr Tyr Leu Lys Ala Leu Gln Pro Ile Val Ser Glu Glu Glu Trp Ala  
 50 55 60  
 His Thr Lys Gln Leu Val Asp Glu Phe Gln Thr Ser Gly Gly Val Gly  
 65 70 75 80  
 Glu Arg Leu Gln Lys Gly Leu Glu Arg Arg Ala Lys Lys Met Glu Asn  
 85 90 95  
 Trp Leu Ser Glu Trp Trp Leu Lys Thr Ala Tyr Leu Gln Leu Xaa Asp  
 100 105 110  
 Lys Pro Val Val Ile Tyr Ser Ser Pro Gly Val Ile Leu Pro Lys Gln  
 115 120 125  
 Asp Phe Val Asp Leu Gln Gly Gln Leu Arg Phe Ala Ala Lys Leu Ile  
 130 135 140  
 Glu Gly Val Leu Asp Phe Lys Ser Met Ile Asp Asn Glu Thr Leu Pro  
 145 150 155 160  
 Val Glu Phe Leu Gly Gly Gln Pro Leu Cys Met Asn Gln Tyr Tyr Gln  
 165 170 175  
 Ile Leu Ser Ser Cys Arg Glu Pro Gly Pro Lys Gln Asp Ser Val Val  
 180 185 190  
 Asn Phe Leu Lys Ser Lys Arg Pro Pro Thr His Ile Thr Val Val His  
 195 200 205  
 Asn Tyr Gln Phe Phe Glu Leu Asp Val Tyr Asn Ser Asp Gly Thr Pro  
 210 215 220  
 Leu Thr Ser Asp Gln Ile Phe Val Gln Leu Glu Lys Ile Trp Asn Ser  
 225 230 235 240  
 Ser Leu Gln Ser Asn Lys Glu Pro Val Gly Ile Leu Thr Ser Asn His  
 245 250 255  
 Arg Asn Thr Trp Ala Lys Ala Tyr Asn Asn Leu Ile Lys Asp Lys Val  
 260 265 270  
 Asn Arg Glu Ser Val Asn Ser Ile Gln Lys Ser Ile Phe Thr Val Cys

|   |     |     |
|---|-----|-----|
| 275   | 280 | 285 |
| Leu Asp Lys Gln Val Pro Arg Val Ser Asp Asp Val Tyr Arg Asn His |     |     |
| 290   | 295 | 300 |
| Val Ala Gly Gln Met Leu His Gly Gly Gly Ser Lys Phe Asn Ser Gly |     |     |
| 305   | 310 | 315 |
| Asn Arg Trp Phe Asp Lys Thr Leu Gln Phe Ile Val Ala Glu Asp Gly |     |     |
| 325   | 330 | 335 |
| Ser Cys Gly Met Val Tyr Glu His Ala Ala Ala Glu Gly Pro Pro Ile |     |     |
| 340   | 345 | 350 |
| Val Ala Leu Val Asp His Val Met Glu Tyr Thr Lys Lys Pro Glu Leu |     |     |
| 355   | 360 | 365 |
| Val Arg Ser Pro Met Val Pro Leu Pro Met Pro Lys Lys Leu Arg Phe |     |     |
| 370   | 375 | 380 |
| Asn Ile Thr Pro Glu Ile Lys Asn Asp Ile Glu Lys Ala Lys Gln Asn |     |     |
| 385   | 390 | 395 |
| Leu Ser Ile Met Ile Gln Asp Leu Asp Ile Met Met Leu Thr Phe His |     |     |
| 405   | 410 | 415 |
| His Phe Gly Lys Asp Phe Pro Lys Ser Glu Lys Leu Ser Pro Asp Ala |     |     |
| 420   | 425 | 430 |
| Phe Ile Gln Val Ala Leu Gln Leu Ala Tyr Tyr Arg Ile Tyr Gly Gln |     |     |
| 435   | 440 | 445 |
| Ala Cys Ala Thr Tyr Glu Ser Ala Ser Leu Arg Met Phe His Leu Gly |     |     |
| 450   | 455 | 460 |
| Arg Thr Asp Thr Ile Arg Ser Ala Ser Ile Asp Ser Leu Ala Phe Val |     |     |
| 465   | 470 | 475 |
| Lys Gly Met Gly Asp Ser Thr Val Pro Glu Gln Gln Lys Val Glu Leu |     |     |
| 485   | 490 | 495 |
| Leu Arg Lys Ala Val Gln Ala His Arg Ala Tyr Thr Asp Arg Ala Ile |     |     |
| 500   | 505 | 510 |

Arg Gly Glu Ala Phe Asp Arg His Leu Leu Gly Leu Lys Leu Gln Ala  
 515 520 525  
 Ile Glu Asp Leu Val Ser Met Pro Asp Ile Phe Met Asp Thr Ser Tyr  
 530 535 540  
 Ala Ile Ala Met His Phe Asn Leu Ser Thr Ser Gln Val Pro Ala Lys  
 545 550 555 560  
 Thr Asp Cys Val Met Phe Phe Gly Pro Val Val Pro Asp Gly Tyr Gly  
 565 570 575  
 Ile Cys Tyr Asn Pro Met Glu Ala His Ile Asn Leu Ser Val Ser Ala  
 580 585 590  
 Tyr Asn Ser Cys Ala Glu Thr Asn Ala Ala Arg Met Ala His Tyr Leu  
 595 600 605  
 Glu Lys Ala Leu Leu Asp Met Arg Thr Leu Leu Gln Asn His Pro Arg  
 610 615 620  
 Ala Lys Leu  
 625

<210> 942

<211> 5110

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (139).. (3435)

<400> 942

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 aaataacaga agacagcgag gtggacttcc tggagggggt gatagctcac atcagaagcc 120



atctgtagcc cggacacc atg ggg ctt cca gga gtg ata cca gct tta gtc 171  
                     Met Gly Leu Pro Gly Val Ile Pro Ala Leu Val  
                     1                    5                    10  
 ctc aga ggc cag ttg ttg ctg tcc gtg tta tgg ctc ctg gga ccg cag 219  
 Leu Arg Gly Gln Leu Leu Leu Ser Val Leu Trp Leu Leu Gly Pro Gln  
                     15                    20                    25  
 acc tcc cgg ggc cta gtc atc acg ccc cct ggg cca gag ttt gtt ctc 267  
 Thr Ser Arg Gly Leu Val Ile Thr Pro Pro Gly Pro Glu Phe Val Leu  
                     30                    35                    40  
 aac atc tcc agc acc ttt gtt ctg acc tgc tcg ggc tca gct ccg gtg 315  
 Asn Ile Ser Ser Thr Phe Val Leu Thr Cys Ser Gly Ser Ala Pro Val  
                     45                    50                    55  
 atg tgg gaa cag atg tcc cag gtg ccc tgg caa gaa gcg gcc atg aat 363  
 Met Trp Glu Gln Met Ser Gln Val Pro Trp Gln Glu Ala Ala Met Asn  
                     60                    65                    70                    75  
 cag gac ggc acc ttc tcc agt gtg ctg aca ctg acc aat gtc act ggg 411  
 Gln Asp Gly Thr Phe Ser Ser Val Leu Thr Leu Thr Asn Val Thr Gly  
                     80                    85                    90  
 gga gac act ggg gaa tac ttt tgt gtc tac aac aac tca cta ggg ccg 459  
 Gly Asp Thr Gly Glu Tyr Phe Cys Val Tyr Asn Asn Ser Leu Gly Pro  
                     95                    100                    105  
 gag ctc agt gag agg aag cgt atc tat atc ttt gtg cca gat ccc acc 507  
 Glu Leu Ser Glu Arg Lys Arg Ile Tyr Ile Phe Val Pro Asp Pro Thr  
                     110                    115                    120  
 atg ggc ttc ctc cct atg gac tcc gag gac ctg ttc att ttt gtc acg 555  
 Met Gly Phe Leu Pro Met Asp Ser Glu Asp Leu Phe Ile Phe Val Thr  
                     125                    130                    135  
 gat gtc act gag acg aca att ccg tgc cga gtg aca gac ccc cag ctg 603  
 Asp Val Thr Glu Thr Thr Ile Pro Cys Arg Val Thr Asp Pro Gln Leu

|   |     |     |     |      |
|---|-----|-----|-----|------|
| 140   | 145 | 150 | 155 |      |
| gag gtg acg cta cat gag aag aaa gtg gat atc ccc cta cac gta ccc |     |     |     | 651  |
| Glu Val Thr Leu His Glu Lys Lys Val Asp Ile Pro Leu His Val Pro |     |     |     |      |
|   | 160 | 165 | 170 |      |
| tac gac cac cag cga ggt ttc act ggt act ttt gag gac aag act tac |     |     |     | 699  |
| Tyr Asp His Gln Arg Gly Phe Thr Gly Thr Phe Glu Asp Lys Thr Tyr |     |     |     |      |
|   | 175 | 180 | 185 |      |
| att tgc aaa acc acc att ggg gac agg gaa gtg gac tcc gat act tac |     |     |     | 747  |
| Ile Cys Lys Thr Thr Ile Gly Asp Arg Glu Val Asp Ser Asp Thr Tyr |     |     |     |      |
|   | 190 | 195 | 200 |      |
| tac gtc tac agc ctc cag gtg tca tcc atc aac gtc tct gtg aat gcc |     |     |     | 795  |
| Tyr Val Tyr Ser Leu Gln Val Ser Ser Ile Asn Val Ser Val Asn Ala |     |     |     |      |
|   | 205 | 210 | 215 |      |
| gtg cag act gtg gtc cgc cag ggc gag agc atc acc atc cgg tgc att |     |     |     | 843  |
| Val Gln Thr Val Val Arg Gln Gly Glu Ser Ile Thr Ile Arg Cys Ile |     |     |     |      |
|   | 220 | 225 | 230 | 235  |
| gtg atg ggc aat gat gtg gtg aac ttc caa tgg acg tac ccc cgc atg |     |     |     | 891  |
| Val Met Gly Asn Asp Val Val Asn Phe Gln Trp Thr Tyr Pro Arg Met |     |     |     |      |
|   | 240 | 245 | 250 |      |
| aag agt ggg cgg ctg gtg gag cca gtg aca gac tac ctc ttt gga gtg |     |     |     | 939  |
| Lys Ser Gly Arg Leu Val Glu Pro Val Thr Asp Tyr Leu Phe Gly Val |     |     |     |      |
|   | 255 | 260 | 265 |      |
| ccc tcc cgc att ggc tcc atc ctg cat atc ccc acg gct gag ctg agt |     |     |     | 987  |
| Pro Ser Arg Ile Gly Ser Ile Leu His Ile Pro Thr Ala Glu Leu Ser |     |     |     |      |
|   | 270 | 275 | 280 |      |
| gat tcg ggc acc tat act tgc aac gtg tca gtg agt gtg aac gac cat |     |     |     | 1035 |
| Asp Ser Gly Thr Tyr Thr Cys Asn Val Ser Val Ser Val Asn Asp His |     |     |     |      |
|   | 285 | 290 | 295 |      |
| ggc gat gag aaa gcc atc aac atc tct gtg atc gag aat ggc tac gtg |     |     |     | 1083 |

|   |             |
|---|-------------|
| Gly Asp Glu Lys Ala Ile Asn Ile Ser Val Ile Glu Asn Gly Tyr Val |             |
| 300   | 305 310 315 |
| cgg ctg ctg gag aca ctg gga gat gta gaa att gct gag ctg cac cgg | 1131        |
| Arg Leu Leu Glu Thr Leu Gly Asp Val Glu Ile Ala Glu Leu His Arg |             |
| 320   | 325 330     |
| agt cgg acg ctg cgg gtg gtg ttc gag gct tat ccg atg cct tct gtc | 1179        |
| Ser Arg Thr Leu Arg Val Val Phe Glu Ala Tyr Pro Met Pro Ser Val |             |
| 335   | 340 345     |
| ctg tgg ctc aag gac aac cgt acc ttg ggt gac tcc ggc gct ggc gag | 1227        |
| Leu Trp Leu Lys Asp Asn Arg Thr Leu Gly Asp Ser Gly Ala Gly Glu |             |
| 350   | 355 360     |
| tta gtt ttg tct act cgc aac atg tct gag acc cgg tac gtg tca gaa | 1275        |
| Leu Val Leu Ser Thr Arg Asn Met Ser Glu Thr Arg Tyr Val Ser Glu |             |
| 365   | 370 375     |
| ctg atc ctg gta cgt gtg aag gtg tca gaa gcg ggc tac tat act atg | 1323        |
| Leu Ile Leu Val Arg Val Lys Val Ser Glu Ala Gly Tyr Tyr Thr Met |             |
| 380   | 385 390 395 |
| cga gcc ttc cac gag gac gat gag gtc cag ctc tcc ttc aag ctg cag | 1371        |
| Arg Ala Phe His Glu Asp Asp Glu Val Gln Leu Ser Phe Lys Leu Gln |             |
| 400   | 405 410     |
| gtc aat gtc ccc gtc cgt gtg ctg gag ctg agt gag agt cac cct gcc | 1419        |
| Val Asn Val Pro Val Arg Val Leu Glu Leu Ser Glu Ser His Pro Ala |             |
| 415   | 420 425     |
| aat ggg gag cag aca atc cgc tgt cgt ggc cgg ggc atg cct cag cca | 1467        |
| Asn Gly Glu Gln Thr Ile Arg Cys Arg Gly Arg Gly Met Pro Gln Pro |             |
| 430   | 435 440     |
| aat gtc acc tgg tct acc tgc aga gac ctc aaa agg tgt cca cga aaa | 1515        |
| Asn Val Thr Trp Ser Thr Cys Arg Asp Leu Lys Arg Cys Pro Arg Lys |             |
| 445   | 450 455     |

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|   |      |     |     |
|---|------|-----|-----|
| 605   | 610  | 615 |     |
| ggt ctg agc cat tcg cag gcc acc atg aaa gtg gct gtc aag atg ctg | 2043 |     |     |
| Gly Leu Ser His Ser Gln Ala Thr Met Lys Val Ala Val Lys Met Leu |      |     |     |
| 620   | 625  | 630 | 635 |
| aaa tcg aca gcc aga agt agc gag aag caa gcc tta atg tcc gag ctg | 2091 |     |     |
| Lys Ser Thr Ala Arg Ser Ser Glu Lys Gln Ala Leu Met Ser Glu Leu |      |     |     |
| 640   | 645  | 650 |     |
| aag att atg agt cat ctt gga ccc cac ctg aac gtg gtc aac ctg ctg | 2139 |     |     |
| Lys Ile Met Ser His Leu Gly Pro His Leu Asn Val Val Asn Leu Leu |      |     |     |
| 655   | 660  | 665 |     |
| ggg gcc tgc acc aaa gga ggg ccc atc tac atc atc acg gaa tac tgc | 2187 |     |     |
| Gly Ala Cys Thr Lys Gly Gly Pro Ile Tyr Ile Ile Thr Glu Tyr Cys |      |     |     |
| 670   | 675  | 680 |     |
| cga tac ggt gat ctg gtg gac tac ctg cac cgg aac aaa cac acc ttc | 2235 |     |     |
| Arg Tyr Gly Asp Leu Val Asp Tyr Leu His Arg Asn Lys His Thr Phe |      |     |     |
| 685   | 690  | 695 |     |
| ttg cag cga cac tcc aac aag cat tgt ccg ccc agt gct gag ctc tac | 2283 |     |     |
| Leu Gln Arg His Ser Asn Lys His Cys Pro Pro Ser Ala Glu Leu Tyr |      |     |     |
| 700   | 705  | 710 | 715 |
| agc aac gcc ctg cca gtg ggg ttc tcc cta ccc agc cac ttg aac ctg | 2331 |     |     |
| Ser Asn Ala Leu Pro Val Gly Phe Ser Leu Pro Ser His Leu Asn Leu |      |     |     |
| 720   | 725  | 730 |     |
| act ggg gag agt gac ggt ggc tac atg gat atg agc aag gat gaa tct | 2379 |     |     |
| Thr Gly Glu Ser Asp Gly Gly Tyr Met Asp Met Ser Lys Asp Glu Ser |      |     |     |
| 735   | 740  | 745 |     |
| ata gat tac gtg ccc atg ttg gac atg aaa gga gac atc aaa tac gca | 2427 |     |     |
| Ile Asp Tyr Val Pro Met Leu Asp Met Lys Gly Asp Ile Lys Tyr Ala |      |     |     |
| 750   | 755  | 760 |     |
| gac att gag tcc ccc agc tac atg gcc cct tat gat aac tat gtc cca | 2475 |     |     |

|   |      |
|---|------|
| Asp Ile Glu Ser Pro Ser Tyr Met Ala Pro Tyr Asp Asn Tyr Val Pro |      |
| 765   | 770  |
| tct gcc cct gaa agg acc tat cgc gcc acc tta atc aac gac tca cca | 2523 |
| Ser Ala Pro Glu Arg Thr Tyr Arg Ala Thr Leu Ile Asn Asp Ser Pro |      |
| 780   | 785  |
| gtg ctc agc tac aca gac ctc gtg ggc ttc agc tac caa gtg gcc aac | 2571 |
| Val Leu Ser Tyr Thr Asp Leu Val Gly Phe Ser Tyr Gln Val Ala Asn |      |
| 800   | 805  |
| ggc atg gac ttc tta gcc tct aag aac tgt gtt cac cga gac ttg gcg | 2619 |
| Gly Met Asp Phe Leu Ala Ser Lys Asn Cys Val His Arg Asp Leu Ala |      |
| 815   | 820  |
| gcc agg aat gtg ctc atc tgc gag ggc aag ctg gtc aag atc tgt gac | 2667 |
| Ala Arg Asn Val Leu Ile Cys Glu Gly Lys Leu Val Lys Ile Cys Asp |      |
| 830   | 835  |
| ttc ggc ctg gct cga gac atc atg agg gac tca aac tac atc tcc aaa | 2715 |
| Phe Gly Leu Ala Arg Asp Ile Met Arg Asp Ser Asn Tyr Ile Ser Lys |      |
| 845   | 850  |
| ggc agc acc tac ctg cct ctg aag tgg atg gcc cca gag agc atc ttc | 2763 |
| Gly Ser Thr Tyr Leu Pro Leu Lys Trp Met Ala Pro Glu Ser Ile Phe |      |
| 860   | 865  |
| aac agc ctc tac acc act ttg agt gat gtc tgg tct ttt ggg atc cta | 2811 |
| Asn Ser Leu Tyr Thr Thr Leu Ser Asp Val Trp Ser Phe Gly Ile Leu |      |
| 880   | 885  |
| ctc tgg gag atc ttc aca ctg ggt ggc acc cct tac cca gag ctg ccc | 2859 |
| Leu Trp Glu Ile Phe Thr Leu Gly Gly Thr Pro Tyr Pro Glu Leu Pro |      |
| 895   | 900  |
| atg aac gac cag ttc tac aat gcc atc aag agg ggc tac cgc atg gcc | 2907 |
| Met Asn Asp Gln Phe Tyr Asn Ala Ile Lys Arg Gly Tyr Arg Met Ala |      |
| 910   | 915  |
|   | 920  |

cag cct gct cat gcc tcc gac gag atc tat gag atc atg cag aaa tgc 2955  
 Gln Pro Ala His Ala Ser Asp Glu Ile Tyr Glu Ile Met Gln Lys Cys  
 925 930 935  
 tgg gaa gaa aag ttt gag act cga ccc ccc ttc tcc cag ctg gtg ctg 3003  
 Trp Glu Glu Lys Phe Glu Thr Arg Pro Pro Phe Ser Gln Leu Val Leu  
 940 945 950 955  
 ctc ctg gag agg ctt ctg ggt gaa ggc tat aaa aag aag tac cag cag 3051  
 Leu Leu Glu Arg Leu Leu Gly Glu Gly Tyr Lys Lys Lys Tyr Gln Gln  
 960 965 970  
 gta gat gag gag ttc ctg agg agt gac cat cct gcc atc ctg agg tcc 3099  
 Val Asp Glu Glu Phe Leu Arg Ser Asp His Pro Ala Ile Leu Arg Ser  
 975 980 985  
 caa gcc cgc ttt ccg ggg atc cac agc ctc cga tcc cct ctg gac acc 3147  
 Gln Ala Arg Phe Pro Gly Ile His Ser Leu Arg Ser Pro Leu Asp Thr  
 990 995 1000  
 agc tct gtt ctc tac act gcc gtg cag ccc aat gag agt gac aat gac 3195  
 Ser Ser Val Leu Tyr Thr Ala Val Gln Pro Asn Glu Ser Asp Asn Asp  
 1005 1010 1015  
 tac atc atc ccc tta cct gac ccc aag cct gac gtt gct gat gaa ggt 3243  
 Tyr Ile Ile Pro Leu Pro Asp Pro Lys Pro Asp Val Ala Asp Glu Gly  
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 ctc cca gag ggg tcc ccc agc ctt gcc agt tcc acc ttg aat gaa gtc 3291  
 Leu Pro Glu Gly Ser Pro Ser Leu Ala Ser Ser Thr Leu Asn Glu Val  
 1040 1045 1050  
 aac act tcc tcc acc atc tcc tgc gac agt ccc ctg gag ctc caa gaa 3339  
 Asn Thr Ser Ser Thr Ile Ser Cys Asp Ser Pro Leu Glu Leu Gln Glu  
 1055 1060 1065  
 gag cca cag caa gca gag cct gag gca caa ctg gag cag cca cag gat 3387  
 Glu Pro Gln Gln Ala Glu Pro Glu Ala Gln Leu Glu Gln Pro Gln Asp

| 1070   | 1075 | 1080 |      |
|--|------|------|------|
| tca ggc tgc cca gga cct ctg gct gaa gca gag gac agc ttc ctg tag    |      |      | 3435 |
| Ser Gly Cys Pro Gly Pro Leu Ala Glu Ala Glu Asp Ser Phe Leu        |      |      |      |
| 1085   | 1090 | 1095 |      |
| gaactgacat cactccatit tgcccgaatc tccctictgc ctcccagaac ccaaccctct  |      |      | 3495 |
| tggcctggcc tggcctggcc tggcctccca gcagctacac tgccacaagc tgtccccctcg |      |      | 3555 |
| aggaaagccc ttggtttgca gcactcaagg tccagggacc cagcttagct taggaggcaa  |      |      | 3615 |
| gagaac tctg cctcggaag gtcattggac tctgaaccag ggttcctcca ggggactcag  |      |      | 3675 |
| tttccccaaa tgtaagagga agagtgtac ttggctacag gacaggtctg gagccccgat   |      |      | 3735 |
| tcctgcagaa atccacgact gtacgggtgt gtgttcataat cctcctgtgt agcagctgcc |      |      | 3795 |
| cctcagctgg attgctctac ttgatcttc ctaagaatca ggcaaggacc tgggtgtctgg  |      |      | 3855 |
| ctcctggcca aactgtaacc agccttggac aaggcttttt cattcagagc ccacctcccc  |      |      | 3915 |
| tggctcttagc tttcccaggc ccgagctggt ctggggccag ccatgcttaa tgaatgtgt  |      |      | 3975 |
| tagtgggtgaa gtagggccga gtacagaatg ctctggcctg cagccctgcc tgggcactca |      |      | 4035 |
| gggcacacct ggccacagga agcaccact cctttcagcc ccaccagtc tagaatagtc    |      |      | 4095 |
| cccaggtcac tctcagctga cccaccacc agagtctgca gggccattgt ccacgcctgt   |      |      | 4155 |
| gataggtaag catctgccig aagtgtgtac ctaccactag gagccctggc tctgcgctgg  |      |      | 4215 |
| acctgctatg agacctggg ggctttcctt gtctctctg gggaccagtt ttctttcccc    |      |      | 4275 |
| tttgaagagc aagttggaca catagactct gagtacctg tcaatagtac aattcttgta   |      |      | 4335 |
| tgttctggga gtttgctctt gtcccgagga agcagggta agtccttaaa ctgatctttc   |      |      | 4395 |
| taggggtcag ctgagctctt ggaagatccc tgatacactt cacactctgg gggttcagga  |      |      | 4455 |
| accgagcctc ttcttcaagt ctccaagtgc aactgcccag accttgactt ggagtgcag   |      |      | 4515 |
| tgagtgtcct aggaacccc ctacagctg tcctgaggac acagaagaga ccacgagacc    |      |      | 4575 |
| cttttttcat atcatgaagc cagcaagagt ggcagagaag gcaagccagg ttacctggg   |      |      | 4635 |
| ccactgtcac cagcagctg tggacagaca tgatggacag tgaggacaga cgtcccatgc   |      |      | 4695 |
| aggacaagag acttgagatg ggcaatgaga ggaagatgct gacgggatta ccacctcaac  |      |      | 4755 |
| tgccagctgc ccccgctccc agggagcacc ccacagaaac agttctaacc ctgaaccaat  |      |      | 4815 |
| gaacattgca agtgcctggg gactagggag tggggggaag tcagcctttc tggggaccct  |      |      | 4875 |
| ccctgctagc tggttggcta gctggcatct ccccgcttgg agcagcagag gctggggagt  |      |      | 4935 |



actgctcaca atggtaccaa agatagaatc acctaggittt acaagtactt gtaggactcg 4995  
 agataaccca catttagaca ccggaagtgc tattttatat gctgttaagt tticctatct 5055  
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<212> PRT

<213> Mus musculus

<400> 943

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 Val Ile Thr Pro Pro Gly Pro Glu Phe Val Leu Asn Ile Ser Ser Thr  
 35 40 45  
 Phe Val Leu Thr Cys Ser Gly Ser Ala Pro Val Met Trp Glu Gln Met  
 50 55 60  
 Ser Gln Val Pro Trp Gln Glu Ala Ala Met Asn Gln Asp Gly Thr Phe  
 65 70 75 80  
 Ser Ser Val Leu Thr Leu Thr Asn Val Thr Gly Gly Asp Thr Gly Glu  
 85 90 95  
 Tyr Phe Cys Val Tyr Asn Asn Ser Leu Gly Pro Glu Leu Ser Glu Arg  
 100 105 110  
 Lys Arg Ile Tyr Ile Phe Val Pro Asp Pro Thr Met Gly Phe Leu Pro  
 115 120 125  
 Met Asp Ser Glu Asp Leu Phe Ile Phe Val Thr Asp Val Thr Glu Thr  
 130 135 140  
 Thr Ile Pro Cys Arg Val Thr Asp Pro Gln Leu Glu Val Thr Leu His

|   |     |     |     |
|---|-----|-----|-----|
| 145   | 150 | 155 | 160 |
| Glu Lys Lys Val Asp Ile Pro Leu His Val Pro Tyr Asp His Gln Arg |     |     |     |
|   | 165 | 170 | 175 |
| Gly Phe Thr Gly Thr Phe Glu Asp Lys Thr Tyr Ile Cys Lys Thr Thr |     |     |     |
|   | 180 | 185 | 190 |
| Ile Gly Asp Arg Glu Val Asp Ser Asp Thr Tyr Tyr Val Tyr Ser Leu |     |     |     |
|   | 195 | 200 | 205 |
| Gln Val Ser Ser Ile Asn Val Ser Val Asn Ala Val Gln Thr Val Val |     |     |     |
|   | 210 | 215 | 220 |
| Arg Gln Gly Glu Ser Ile Thr Ile Arg Cys Ile Val Met Gly Asn Asp |     |     |     |
| 225   | 230 | 235 | 240 |
| Val Val Asn Phe Gln Trp Thr Tyr Pro Arg Met Lys Ser Gly Arg Leu |     |     |     |
|   | 245 | 250 | 255 |
| Val Glu Pro Val Thr Asp Tyr Leu Phe Gly Val Pro Ser Arg Ile Gly |     |     |     |
|   | 260 | 265 | 270 |
| Ser Ile Leu His Ile Pro Thr Ala Glu Leu Ser Asp Ser Gly Thr Tyr |     |     |     |
|   | 275 | 280 | 285 |
| Thr Cys Asn Val Ser Val Ser Val Asn Asp His Gly Asp Glu Lys Ala |     |     |     |
|   | 290 | 295 | 300 |
| Ile Asn Ile Ser Val Ile Glu Asn Gly Tyr Val Arg Leu Leu Glu Thr |     |     |     |
| 305   | 310 | 315 | 320 |
| Leu Gly Asp Val Glu Ile Ala Glu Leu His Arg Ser Arg Thr Leu Arg |     |     |     |
|   | 325 | 330 | 335 |
| Val Val Phe Glu Ala Tyr Pro Met Pro Ser Val Leu Trp Leu Lys Asp |     |     |     |
|   | 340 | 345 | 350 |
| Asn Arg Thr Leu Gly Asp Ser Gly Ala Gly Glu Leu Val Leu Ser Thr |     |     |     |
|   | 355 | 360 | 365 |
| Arg Asn Met Ser Glu Thr Arg Tyr Val Ser Glu Leu Ile Leu Val Arg |     |     |     |
|   | 370 | 375 | 380 |

Val Lys Val Ser Glu Ala Gly Tyr Tyr Thr Met Arg Ala Phe His Glu  
 385                                      390                                      395                                      400  
 Asp Asp Glu Val Gln Leu Ser Phe Lys Leu Gln Val Asn Val Pro Val  
    405                                      410                                      415  
 Arg Val Leu Glu Leu Ser Glu Ser His Pro Ala Asn Gly Glu Gln Thr  
    420                                      425                                      430  
 Ile Arg Cys Arg Gly Arg Gly Met Pro Gln Pro Asn Val Thr Trp Ser  
    435                                      440                                      445  
 Thr Cys Arg Asp Leu Lys Arg Cys Pro Arg Lys Leu Ser Pro Thr Pro  
    450                                      455                                      460  
 Leu Gly Asn Ser Ser Lys Glu Glu Ser Gln Leu Glu Thr Asn Val Thr  
 465                                      470                                      475                                      480  
 Phe Trp Glu Glu Asp Gln Glu Tyr Glu Val Val Ser Thr Leu Arg Leu  
    485                                      490                                      495  
 Arg His Val Asp Gln Pro Leu Ser Val Arg Cys Met Leu Gln Asn Ser  
    500                                      505                                      510  
 Met Gly Gly Asp Ser Gln Glu Val Thr Val Val Pro His Ser Leu Pro  
    515                                      520                                      525  
 Phe Lys Val Val Val Ile Ser Ala Ile Leu Ala Leu Val Val Leu Thr  
    530                                      535                                      540  
 Val Ile Ser Leu Ile Ile Leu Ile Met Leu Trp Gln Lys Lys Pro Arg  
 545                                      550                                      555                                      560  
 Tyr Glu Ile Arg Trp Lys Val Ile Glu Ser Val Ser Ser Asp Gly His  
    565                                      570                                      575  
 Glu Tyr Ile Tyr Val Asp Pro Val Gln Leu Pro Tyr Asp Ser Thr Trp  
    580                                      585                                      590  
 Glu Leu Pro Arg Asp Gln Leu Val Leu Gly Arg Thr Leu Gly Ser Gly  
    595                                      600                                      605  
 Ala Phe Gly Gln Val Val Glu Ala Thr Ala His Gly Leu Ser His Ser

|   |   |     |     |
|---|---|-----|-----|
| 610   | 615                                     | 620 |     |
| Gln Ala Thr Met Lys Val   | Ala Val Lys Met Leu Lys Ser Thr Ala Arg |     |     |
| 625   | 630                                     | 635 | 640 |
| Ser Ser Glu Lys Gln Ala Leu Met Ser Glu Leu Lys Ile Met Ser His |   |     |     |
| 645   | 650                                     | 655 |     |
| Leu Gly Pro His Leu Asn Val Val Asn Leu Leu Gly Ala Cys Thr Lys |   |     |     |
| 660   | 665                                     | 670 |     |
| Gly Gly Pro Ile Tyr Ile Ile Thr Glu Tyr Cys Arg Tyr Gly Asp Leu |   |     |     |
| 675   | 680                                     | 685 |     |
| Val Asp Tyr Leu His Arg Asn Lys His Thr Phe Leu Gln Arg His Ser |   |     |     |
| 690   | 695                                     | 700 |     |
| Asn Lys His Cys Pro Pro Ser Ala Glu Leu Tyr Ser Asn Ala Leu Pro |   |     |     |
| 705   | 710                                     | 715 | 720 |
| Val Gly Phe Ser Leu Pro Ser His Leu Asn Leu Thr Gly Glu Ser Asp |   |     |     |
| 725   | 730                                     | 735 |     |
| Gly Gly Tyr Met Asp Met Ser Lys Asp Glu Ser Ile Asp Tyr Val Pro |   |     |     |
| 740   | 745                                     | 750 |     |
| Met Leu Asp Met Lys Gly Asp Ile Lys Tyr Ala Asp Ile Glu Ser Pro |   |     |     |
| 755   | 760                                     | 765 |     |
| Ser Tyr Met Ala Pro Tyr Asp Asn Tyr Val Pro Ser Ala Pro Glu Arg |   |     |     |
| 770   | 775                                     | 780 |     |
| Thr Tyr Arg Ala Thr Leu Ile Asn Asp Ser Pro Val Leu Ser Tyr Thr |   |     |     |
| 785   | 790                                     | 795 | 800 |
| Asp Leu Val Gly Phe Ser Tyr Gln Val Ala Asn Gly Met Asp Phe Leu |   |     |     |
| 805   | 810                                     | 815 |     |
| Ala Ser Lys Asn Cys Val His Arg Asp Leu Ala Ala Arg Asn Val Leu |   |     |     |
| 820   | 825                                     | 830 |     |
| Ile Cys Glu Gly Lys Leu Val Lys Ile Cys Asp Phe Gly Leu Ala Arg |   |     |     |
| 835   | 840                                     | 845 |     |

Asp Ile Met Arg Asp Ser Asn Tyr Ile Ser Lys Gly Ser Thr Tyr Leu  
 850 855 860  
 Pro Leu Lys Trp Met Ala Pro Glu Ser Ile Phe Asn Ser Leu Tyr Thr  
 865 870 875 880  
 Thr Leu Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Trp Glu Ile Phe  
 885 890 895  
 Thr Leu Gly Gly Thr Pro Tyr Pro Glu Leu Pro Met Asn Asp Gln Phe  
 900 905 910  
 Tyr Asn Ala Ile Lys Arg Gly Tyr Arg Met Ala Gln Pro Ala His Ala  
 915 920 925  
 Ser Asp Glu Ile Tyr Glu Ile Met Gln Lys Cys Trp Glu Glu Lys Phe  
 930 935 940  
 Glu Thr Arg Pro Pro Phe Ser Gln Leu Val Leu Leu Leu Glu Arg Leu  
 945 950 955 960  
 Leu Gly Glu Gly Tyr Lys Lys Lys Tyr Gln Gln Val Asp Glu Glu Phe  
 965 970 975  
 Leu Arg Ser Asp His Pro Ala Ile Leu Arg Ser Gln Ala Arg Phe Pro  
 980 985 990  
 Gly Ile His Ser Leu Arg Ser Pro Leu Asp Thr Ser Ser Val Leu Tyr  
 995 1000 1005  
 Thr Ala Val Gln Pro Asn Glu Ser Asp Asn Asp Tyr Ile Ile Pro Leu  
 1010 1015 1020  
 Pro Asp Pro Lys Pro Asp Val Ala Asp Glu Gly Leu Pro Glu Gly Ser  
 1025 1030 1035 1040  
 Pro Ser Leu Ala Ser Ser Thr Leu Asn Glu Val Asn Thr Ser Ser Thr  
 1045 1050 1055  
 Ile Ser Cys Asp Ser Pro Leu Glu Leu Gln Glu Glu Pro Gln Gln Ala  
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 Glu Pro Glu Ala Gln Leu Glu Gln Pro Gln Asp Ser Gly Cys Pro Gly

1075 1080 1085  
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<210> 944

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<212> DNA

<213> Mus musculus

<220>

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<222> (67).. (693)

<400> 944

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      Met Glu Asn Trp Asp Leu Ser Ser Asp Glu Met Gln Asp Gly
          1             5             10
aat gct cca gaa ttg gac gtt att gaa gaa cat aat cca gta act cgt 156
Asn Ala Pro Glu Leu Asp Val Ile Glu Glu His Asn Pro Val Thr Arg
15             20             25             30
gat gat gag aat gca aat cct gaa gaa gta gtt gga gat aca cga tct 204
Asp Asp Glu Asn Ala Asn Pro Glu Glu Val Val Gly Asp Thr Arg Ser
          35             40             45
cca gta caa aat att ctg gga aaa ttt gaa ggt gac att aac aag agg 252
Pro Val Gln Asn Ile Leu Gly Lys Phe Glu Gly Asp Ile Asn Lys Arg
          50             55             60
cct cac ata aag aga aaa cgc atg gaa act tat atc aaa gat tct ttc 300
Leu His Ile Lys Arg Lys Arg Met Glu Thr Tyr Ile Lys Asp Ser Phe

```

|  |     |     |     |
|--|-----|-----|-----|
| 65   | 70  | 75  |     |
| aaa gac agc aac gtg aaa tta gaa caa ctt tgg aaa acg aac aaa caa    | 348 |     |     |
| Lys Asp Ser Asn Val Lys Leu Glu Gln Leu Trp Lys Thr Asn Lys Gln    |     |     |     |
| 80   | 85  | 90  |     |
| gag aga aag aag att aac aac aaa ttt tgt gag cag tat ata act aca    | 396 |     |     |
| Glu Arg Lys Lys Ile Asn Asn Lys Phe Cys Glu Gln Tyr Ile Thr Thr    |     |     |     |
| 95   | 100 | 105 | 110 |
| ttt cag aag ttt gat atg gat gtc cag aaa ttc aat gaa gaa caa gaa    | 444 |     |     |
| Phe Gln Lys Phe Asp Met Asp Val Gln Lys Phe Asn Glu Glu Gln Glu    |     |     |     |
| 115  | 120 | 125 |     |
| aaa tca gtg aac aat tat caa aaa gaa caa caa gca tta aaa ctg tcc    | 492 |     |     |
| Lys Ser Val Asn Asn Tyr Gln Lys Glu Gln Gln Ala Leu Lys Leu Ser    |     |     |     |
| 130  | 135 | 140 |     |
| aaa tgt agt cag agc cag acc ctg gaa gca att aaa gac atg cat gaa    | 540 |     |     |
| Lys Cys Ser Gln Ser Gln Thr Leu Glu Ala Ile Lys Asp Met His Glu    |     |     |     |
| 145  | 150 | 155 |     |
| aac tac atg gag ggt ctg atg aac ttg gag acc aac aac tac aat atg    | 588 |     |     |
| Asn Tyr Met Glu Gly Leu Met Asn Leu Glu Thr Asn Asn Tyr Asn Met    |     |     |     |
| 160  | 165 | 170 |     |
| ctt ttt gat gta gat ggt gaa ctg aga aaa gaa atg tca gtg ttt aaa    | 636 |     |     |
| Leu Phe Asp Val Asp Gly Glu Leu Arg Lys Glu Met Ser Val Phe Lys    |     |     |     |
| 175  | 180 | 185 | 190 |
| aaa gac ctc atg aag cat act ctg aag tac tct tct agt ttc cca tct    | 684 |     |     |
| Lys Asp Leu Met Lys His Thr Leu Lys Tyr Ser Ser Ser Phe Pro Ser    |     |     |     |
| 195  | 200 | 205 |     |
| tca gac taa ggaagcatgc atattttgca ctgtctggta catttgtaac            | 733 |     |     |
| Ser Asp  |     |     |     |
| caaataaaaa attcgctaac ttttttgtct cctatgaaac agagtttgaa aggctcttta  | 793 |     |     |
| atccttgitta ttctgatgat tctaagaagg aagttaaccc ccagtgaagt tattacaaag | 853 |     |     |

ttaactagga ggtatacctt tagagtcaaa atagaactcc tttattttta aacatcttta 913  
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<210> 945

<211> 208

<212> PRT

<213> Mus musculus

<400> 945

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20 25 30  
Glu Asn Ala Asn Pro Glu Glu Val Val Gly Asp Thr Arg Ser Pro Val  
35 40 45  
Gln Asn Ile Leu Gly Lys Phe Glu Gly Asp Ile Asn Lys Arg Leu His  
50 55 60  
Ile Lys Arg Lys Arg Met Glu Thr Tyr Ile Lys Asp Ser Phe Lys Asp  
65 70 75 80  
Ser Asn Val Lys Leu Glu Gln Leu Trp Lys Thr Asn Lys Gln Glu Arg  
85 90 95  
Lys Lys Ile Asn Asn Lys Phe Cys Glu Gln Tyr Ile Thr Thr Phe Gln  
100 105 110  
Lys Phe Asp Met Asp Val Gln Lys Phe Asn Glu Glu Gln Glu Lys Ser  
115 120 125  
Val Asn Asn Tyr Gln Lys Glu Gln Gln Ala Leu Lys Leu Ser Lys Cys  
130 135 140  
Ser Gln Ser Gln Thr Leu Glu Ala Ile Lys Asp Met His Glu Asn Tyr  
145 150 155 160



2349/2644

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<211> 407

<212> DNA

<213> Mus musculus

<400> 947

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<212> DNA

<213> Mus musculus

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<221> CDS

<222> (68).. (1084)

<400> 948

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          1             5             10
gaa gtt tta tgc aag ggt aac aag atg ctc aac tac agc act ccc agc 157

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2354/2644

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| ttc att cat aac gcc gag gag cga cgc gcc ctg gcg ggg ggc cga gac                | 637  |
| Phe Ile His Asn Ala Glu Glu Arg Arg Ala Leu Ala Gly Gly Arg Asp                |      |
| 175                      180                      185                      190 |      |
| ctc tcc gct gac cgt ccc cgc ctc cag cat agc ttt agc ttt gct ggg                | 685  |
| Leu Ser Ala Asp Arg Pro Arg Leu Gln His Ser Phe Ser Phe Ala Gly                |      |
| 195                      200                      205                          |      |
| ttt ccc agt gcc gct gcc acc gcc gct gcc acg ggg ctg ctg gac agc                | 733  |
| Phe Pro Ser Ala Ala Ala Thr Ala Ala Ala Thr Gly Leu Leu Asp Ser                |      |
| 210                      215                      220                          |      |
| ccc aca tcc atc acc cca ccc cct atc ctg agc gcc gat gac ctc ttg                | 781  |
| Pro Thr Ser Ile Thr Pro Pro Pro Ile Leu Ser Ala Asp Asp Leu Leu                |      |
| 225                      230                      235                          |      |
| ggc tca cct act ctg ccc gat ggc acc aat aac ccc ttc gcc ttt tcc                | 829  |
| Gly Ser Pro Thr Leu Pro Asp Gly Thr Asn Asn Pro Phe Ala Phe Ser                |      |
| 240                      245                      250                          |      |
| agc cag gag ctg gcg agc ctc ttt gct cct agc atg ggg ctg cct ggg                | 877  |
| Ser Gln Glu Leu Ala Ser Leu Phe Ala Pro Ser Met Gly Leu Pro Gly                |      |
| 255                      260                      265                      270 |      |
| gga ggc tcc ccc acc act ttc ctc ttc cgg ccc atg tcc gaa tcc cct                | 925  |
| Gly Gly Ser Pro Thr Thr Phe Leu Phe Arg Pro Met Ser Glu Ser Pro                |      |
| 275                      280                      285                          |      |
| cac atg ttt gac tct ccc ccc agc cct cag gat tct ctc tcg gac cac                | 973  |
| His Met Phe Asp Ser Pro Pro Ser Pro Gln Asp Ser Leu Ser Asp His                |      |
| 290                      295                      300                          |      |
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| Glu Gly Tyr Leu Ser Ser Ser Ser Ser Ser His Ser Gly Ser Asp Ser                |      |
| 305                      310                      315                          |      |
| cct acc ttg gac aac tca aga cgc ctg ccc att ttc agc aga ctc tcc                | 1069 |
| Pro Thr Leu Asp Asn Ser Arg Arg Leu Pro Ile Phe Ser Arg Leu Ser                |      |

320

325

330

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Ile Ser Asp Asp

335

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2659

&lt;210&gt; 949

&lt;211&gt; 338

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 949

Met Thr Thr Thr Leu Val Ser Ala Thr Ile Phe Asp Leu Ser Glu Val

1 5 10 15

Leu Cys Lys Gly Asn Lys Met Leu Asn Tyr Ser Thr Pro Ser Ala Gly

20 25 30

Gly Cys Leu Leu Asp Arg Lys Ala Val Gly Thr Pro Ala Gly Gly Gly

35 40 45

Phe Pro Arg Arg His Ser Val Thr Leu Pro Ser Ser Lys Phe His Gln

50 55 60

Asn Gln Leu Leu Ser Ser Leu Lys Gly Glu Pro Ala Pro Ser Leu Ser

65 70 75 80

Ser Arg Asp Ser Arg Phe Arg Asp Arg Ser Phe Ser Glu Gly Gly Glu

85 90 95

Arg Leu Leu Pro Thr Gln Lys Gln Pro Gly Ser Gly Gln Val Asn Ser

100 105 110

Ser Arg Tyr Lys Thr Glu Leu Cys Arg Pro Phe Glu Glu Asn Gly Ala

115 120 125

Cys Lys Tyr Gly Asp Lys Cys Gln Phe Ala His Gly Ile His Glu Leu

130 135 140

Arg Ser Leu Thr Arg His Pro Lys Tyr Lys Thr Glu Leu Cys Arg Thr

145 150 155 160

Phe His Thr Ile Gly Phe Cys Pro Tyr Gly Pro Arg Cys His Phe Ile

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 165 |     | 170 |     | 175 |
| His Asn Ala Glu Glu Arg Arg Ala Leu Ala Gly Gly Arg Asp Leu Ser |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Ala Asp Arg Pro Arg Leu Gln His Ser Phe Ser Phe Ala Gly Phe Pro |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |
| Ser Ala Ala Ala Thr Ala Ala Ala Thr Gly Leu Leu Asp Ser Pro Thr |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |
| Ser Ile Thr Pro Pro Pro Ile Leu Ser Ala Asp Asp Leu Leu Gly Ser |     |     |     |     |     |
| 225   |     | 230 |     | 235 | 240 |
| Pro Thr Leu Pro Asp Gly Thr Asn Asn Pro Phe Ala Phe Ser Ser Gln |     |     |     |     |     |
|   | 245 |     | 250 |     | 255 |
| Glu Leu Ala Ser Leu Phe Ala Pro Ser Met Gly Leu Pro Gly Gly Gly |     |     |     |     |     |
|   | 260 |     | 265 |     | 270 |
| Ser Pro Thr Thr Phe Leu Phe Arg Pro Met Ser Glu Ser Pro His Met |     |     |     |     |     |
|   | 275 |     | 280 |     | 285 |
| Phe Asp Ser Pro Pro Ser Pro Gln Asp Ser Leu Ser Asp His Glu Gly |     |     |     |     |     |
|   | 290 |     | 295 |     | 300 |
| Tyr Leu Ser Ser Ser Ser Ser Ser His Ser Gly Ser Asp Ser Pro Thr |     |     |     |     |     |
| 305   |     | 310 |     | 315 | 320 |
| Leu Asp Asn Ser Arg Arg Leu Pro Ile Phe Ser Arg Leu Ser Ile Ser |     |     |     |     |     |
|   | 325 |     | 330 |     | 335 |
| Asp Asp   |     |     |     |     |     |

&lt;210&gt; 950

&lt;211&gt; 490

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 950

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490

&lt;210&gt; 951

&lt;211&gt; 275

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 951

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275

&lt;210&gt; 952

&lt;211&gt; 4512

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1).. (4395)

&lt;400&gt; 952

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| gtc tgg cac ggt ccg gcg cag aac gcg gcg gcg gag aag ggt act cca | 96  |
| Val Trp His Gly Pro Ala Gln Asn Ala Ala Ala Glu Lys Gly Thr Pro |     |
| 20 25 30  |     |
| gcg ctg aac att gcg gtg ctg ctg ggt cac agc cac gac gtg aca gaa | 144 |
| Ala Leu Asn Ile Ala Val Leu Leu Gly His Ser His Asp Val Thr Glu |     |
| 35 40 45  |     |
| cgc gaa ctt cga aat ctg tgg ggc ccg gag cag gca acc ggc ttg ccc | 192 |
| Arg Glu Leu Arg Asn Leu Trp Gly Pro Glu Gln Ala Thr Gly Leu Pro |     |
| 50 55 60  |     |
| ctg gat gtg aac gtg gtg gcg tta ttg atg aac cgc act gac cct aag | 240 |
| Leu Asp Val Asn Val Val Ala Leu Leu Met Asn Arg Thr Asp Pro Lys |     |
| 65 70 75 80   |     |
| agc ctc atc acg cat gtg tgc gac ctc atg tcc ggg gcg cgc atc cat | 288 |
| Ser Leu Ile Thr His Val Cys Asp Leu Met Ser Gly Ala Arg Ile His |     |
| 85 90 95  |     |
| ggc ttg gtg ttt gga gat gat acg gac caa gag gct gtg gct cag atg | 336 |
| Gly Leu Val Phe Gly Asp Asp Thr Asp Gln Glu Ala Val Ala Gln Met |     |
| 100 105 110   |     |
| ctg gat ttt atc tcc tca cag act ttc atc ccc atc ttg ggc att cat | 384 |
| Leu Asp Phe Ile Ser Ser Gln Thr Phe Ile Pro Ile Leu Gly Ile His |     |
| 115 120 125   |     |
| ggg ggt gca tct atg atc atg gct gac aag gat ccg aca tcc acg ttc | 432 |
| Gly Gly Ala Ser Met Ile Met Ala Asp Lys Asp Pro Thr Ser Thr Phe |     |

|   |     |     |     |
|---|-----|-----|-----|
| 130   | 135 | 140 |     |
| ttc cag ttt gga gct tcc atc cag cag caa gcc acg gtc atg ctg aag | 480 |     |     |
| Phe Gln Phe Gly Ala Ser Ile Gln Gln Gln Ala Thr Val Met Leu Lys |     |     |     |
| 145   | 150 | 155 | 160 |
| atc atg cag gac tat gac tgg cat gtc ttc tcc ttg gtc acc acc atc | 528 |     |     |
| Ile Met Gln Asp Tyr Asp Trp His Val Phe Ser Leu Val Thr Thr Ile |     |     |     |
|   | 165 | 170 | 175 |
| ttc cct ggc tac aga gac ttc atc agc ttc atc aag aca aca gtg gac | 576 |     |     |
| Phe Pro Gly Tyr Arg Asp Phe Ile Ser Phe Ile Lys Thr Thr Val Asp |     |     |     |
|   | 180 | 185 | 190 |
| aac agc ttt gtg ggc tgg gat atg cag aac gtg atc aca ctg gac acc | 624 |     |     |
| Asn Ser Phe Val Gly Trp Asp Met Gln Asn Val Ile Thr Leu Asp Thr |     |     |     |
|   | 195 | 200 | 205 |
| tct ttt gag gac gcc aag aca cag gtc cag ctg aag aag atc cac tcc | 672 |     |     |
| Ser Phe Glu Asp Ala Lys Thr Gln Val Gln Leu Lys Lys Ile His Ser |     |     |     |
|   | 210 | 215 | 220 |
| tct gtc atc ctg ctc tac tgc tcc aag gat gag gct gtc ctc atc ctg | 720 |     |     |
| Ser Val Ile Leu Leu Tyr Cys Ser Lys Asp Glu Ala Val Leu Ile Leu |     |     |     |
| 225   | 230 | 235 | 240 |
| agc gag gct cgc tct ctt ggc ctc acc ggc tac gat ttc ttc tgg att | 768 |     |     |
| Ser Glu Ala Arg Ser Leu Gly Leu Thr Gly Tyr Asp Phe Phe Trp Ile |     |     |     |
|   | 245 | 250 | 255 |
| gtc ccc agt ttg gtc tcc ggg aac aca gag ctc atc ccc aaa gag ttt | 816 |     |     |
| Val Pro Ser Leu Val Ser Gly Asn Thr Glu Leu Ile Pro Lys Glu Phe |     |     |     |
|   | 260 | 265 | 270 |
| cca tcg ggt ctc att tca gtc tct tac gac gac tgg gac tac agt ctg | 864 |     |     |
| Pro Ser Gly Leu Ile Ser Val Ser Tyr Asp Asp Trp Asp Tyr Ser Leu |     |     |     |
|   | 275 | 280 | 285 |
| gag gca aga gtg aga gac ggt ctt ggg atc tta acc act gcc gca tct | 912 |     |     |

Glu Ala Arg Val Arg Asp Gly Leu Gly Ile Leu Thr Thr Ala Ala Ser  
 290 295 300  
 tcc atg ttg gag aaa ttc tcc tac att ccc gag gcc aag gcc agc tgc 960  
 Ser Met Leu Glu Lys Phe Ser Tyr Ile Pro Glu Ala Lys Ala Ser Cys  
 305 310 315 320  
 tac ggg cag aca gag aag ccg gag acc ccg cta cac act ctg cac caa 1008  
 Tyr Gly Gln Thr Glu Lys Pro Glu Thr Pro Leu His Thr Leu His Gln  
 325 330 335  
 ttt atg gtc aat gtg act tgg gat ggc aag gac ttg tcc ttc act gag 1056  
 Phe Met Val Asn Val Thr Trp Asp Gly Lys Asp Leu Ser Phe Thr Glu  
 340 345 350  
 gaa ggc tat cag gtg cac ccc agg ctt gtg gtg atc gtg ctg aat aag 1104  
 Glu Gly Tyr Gln Val His Pro Arg Leu Val Val Ile Val Leu Asn Lys  
 355 360 365  
 gac cgg gaa tgg gaa aag gtg ggc aag tgg gag aat cag act ctg agg 1152  
 Asp Arg Glu Trp Glu Lys Val Gly Lys Trp Glu Asn Gln Thr Leu Arg  
 370 375 380  
 ctg cgg cat gct gtg tgg cca agg tat aag tcc ttt tct gac tgt gag 1200  
 Leu Arg His Ala Val Trp Pro Arg Tyr Lys Ser Phe Ser Asp Cys Glu  
 385 390 395 400  
 cca gat gac aac cac ctc agc att gtc acc ttg gag gaa gcc ccc ttc 1248  
 Pro Asp Asp Asn His Leu Ser Ile Val Thr Leu Glu Glu Ala Pro Phe  
 405 410 415  
 gtc atc gta gaa gac ata gac cca ctg act gag acc tgc gtc agg aac 1296  
 Val Ile Val Glu Asp Ile Asp Pro Leu Thr Glu Thr Cys Val Arg Asn  
 420 425 430  
 acg gta ccc tgt cgg aag ttt gtc aag atc aac aat tca acc aac gaa 1344  
 Thr Val Pro Cys Arg Lys Phe Val Lys Ile Asn Asn Ser Thr Asn Glu  
 435 440 445

ggg atg aat gtg aag aag tgc tgc aag ggg ttc tgc atc gac atc ctt 1392  
 Gly Met Asn Val Lys Lys Cys Cys Lys Gly Phe Cys Ile Asp Ile Leu  
 450 455 460  
 aag aaa ctg tcc aga act gta aag ttc acc tat gac ctc tac ctg gtg 1440  
 Lys Lys Leu Ser Arg Thr Val Lys Phe Thr Tyr Asp Leu Tyr Leu Val  
 465 470 475 480  
 acc aat ggg aag cat ggg aaa aag gtt aac aat gtg tgg aat gga atg 1488  
 Thr Asn Gly Lys His Gly Lys Lys Val Asn Asn Val Trp Asn Gly Met  
 485 490 495  
 ata ggc gaa gtg gtc tat caa cga gca gtt atg gcc gtg ggc tcc ctc 1536  
 Ile Gly Glu Val Val Tyr Gln Arg Ala Val Met Ala Val Gly Ser Leu  
 500 505 510  
 acc atc aat gag gag cgt tca gaa gtg gtg gac ttc tcc gtg ccc ttt 1584  
 Thr Ile Asn Glu Glu Arg Ser Glu Val Val Asp Phe Ser Val Pro Phe  
 515 520 525  
 gtg gag aca gga atc agt gtc atg gtc tcc agg agt aat ggc act gtt 1632  
 Val Glu Thr Gly Ile Ser Val Met Val Ser Arg Ser Asn Gly Thr Val  
 530 535 540  
 tcc cct tct gct ttc ctt gaa ccc ttc agc gcc tct gtc tgg gtg atg 1680  
 Ser Pro Ser Ala Phe Leu Glu Pro Phe Ser Ala Ser Val Trp Val Met  
 545 550 555 560  
 atg ttc gtg atg ctg ctc att gtc tct gcc att gct gtc ttc gtt ttt 1728  
 Met Phe Val Met Leu Leu Ile Val Ser Ala Ile Ala Val Phe Val Phe  
 565 570 575  
 gaa tac ttc agt cct gtt gga tac aac aga aac tta gcc aaa ggg aaa 1776  
 Glu Tyr Phe Ser Pro Val Gly Tyr Asn Arg Asn Leu Ala Lys Gly Lys  
 580 585 590  
 gct ccc cat ggg cct tct ttt acc att gga aaa gct ata tgg ctc ctc 1824  
 Ala Pro His Gly Pro Ser Phe Thr Ile Gly Lys Ala Ile Trp Leu Leu

|   |                             |     |      |
|---|-----------------------------|-----|------|
| 595   | 600                         | 605 |      |
| tgg ggc ctg gtc ttc aac aat tct gtg ccc gtc cag aat cct aaa ggc |                             |     | 1872 |
| Trp Gly Leu Val Phe Asn Asn Ser Val                             | Pro Val Gln Asn Pro Lys Gly |     |      |
| 610   | 615                         | 620 |      |
| aca acc agc aag ata atg gta tca gtg tgg gcc ttc ttt gcc gtc atc |                             |     | 1920 |
| Thr Thr Ser Lys Ile Met Val Ser Val Trp Ala Phe Phe Ala Val Ile |                             |     |      |
| 625   | 630                         | 635 | 640  |
| ttc ctt gca agt tac aca gcc aac ctg gct gcc ttc atg atc cag gag |                             |     | 1968 |
| Phe Leu Ala Ser Tyr Thr Ala Asn Leu Ala Ala Phe Met Ile Gln Glu |                             |     |      |
| 645   | 650                         | 655 |      |
| gag ttt gtg gac caa gtg act ggc ctc agt gac aag aag ttc cag aga |                             |     | 2016 |
| Glu Phe Val Asp Gln Val Thr Gly Leu Ser Asp Lys Lys Phe Gln Arg |                             |     |      |
| 660   | 665                         | 670 |      |
| cct cat gac tat tct ccg cct ttc cga ttt ggg aca gta ccc aat gga |                             |     | 2064 |
| Pro His Asp Tyr Ser Pro Pro Phe Arg Phe Gly Thr Val Pro Asn Gly |                             |     |      |
| 675   | 680                         | 685 |      |
| agt aca gaa agg aat att cgt aac aac tac ccc tat atg cac cag tac |                             |     | 2112 |
| Ser Thr Glu Arg Asn Ile Arg Asn Asn Tyr Pro Tyr Met His Gln Tyr |                             |     |      |
| 690   | 695                         | 700 |      |
| atg acc aaa ttc aac cag agg ggc gta gag gat gcc ttg gtc agc ttg |                             |     | 2160 |
| Met Thr Lys Phe Asn Gln Arg Gly Val Glu Asp Ala Leu Val Ser Leu |                             |     |      |
| 705   | 710                         | 715 | 720  |
| aaa act ggg aag ttg gac gct ttc atc tat gac gca gct gtc ttg aac |                             |     | 2208 |
| Lys Thr Gly Lys Leu Asp Ala Phe Ile Tyr Asp Ala Ala Val Leu Asn |                             |     |      |
| 725   | 730                         | 735 |      |
| tac aag gcc ggg agg gat gaa ggc tgt aaa ctg gtg acc att ggg agc |                             |     | 2256 |
| Tyr Lys Ala Gly Arg Asp Glu Gly Cys Lys Leu Val Thr Ile Gly Ser |                             |     |      |
| 740   | 745                         | 750 |      |
| ggg tac atc ttt gcc acc aca ggc tat gga att gct ctg cag aag ggc |                             |     | 2304 |



|   |      |
|---|------|
| Gly Tyr Ile Phe Ala Thr Thr Gly Tyr Gly Ile Ala Leu Gln Lys Gly |      |
| 755   | 760  |
| tca ccc tgg aag agg cag att gac ctc gct ctg ctc cag ttt gtt ggt | 2352 |
| Ser Pro Trp Lys Arg Gln Ile Asp Leu Ala Leu Leu Gln Phe Val Gly |      |
| 770   | 775  |
| gac ggt gag atg gaa gag ctg gag aca ctg tgg ctt acg ggc atc tgc | 2400 |
| Asp Gly Glu Met Glu Glu Leu Glu Thr Leu Trp Leu Thr Gly Ile Cys |      |
| 785   | 790  |
| cac aac gag aag aat gag gtg atg agc agc cag ctg gac atc gac aac | 2448 |
| His Asn Glu Lys Asn Glu Val Met Ser Ser Gln Leu Asp Ile Asp Asn |      |
| 805   | 810  |
| atg gca gga gtt ttc tac atg ctg gct gca gct atg gcc ctc agc ctc | 2496 |
| Met Ala Gly Val Phe Tyr Met Leu Ala Ala Ala Met Ala Leu Ser Leu |      |
| 820   | 825  |
| atc acc ttc atc tgg gag cac ctc ttc tac tgg aag ctg cgc ttc tgc | 2544 |
| Ile Thr Phe Ile Trp Glu His Leu Phe Tyr Trp Lys Leu Arg Phe Cys |      |
| 835   | 840  |
| ttc aca ggc gtg tgt tct gac cgg ccc ggg ctg ctc ttc tcc atc agc | 2592 |
| Phe Thr Gly Val Cys Ser Asp Arg Pro Gly Leu Leu Phe Ser Ile Ser |      |
| 850   | 855  |
| agg ggc atc tac agt tgc atc cat gga gtg cac att gaa gaa aag aag | 2640 |
| Arg Gly Ile Tyr Ser Cys Ile His Gly Val His Ile Glu Glu Lys Lys |      |
| 865   | 870  |
| aag tct cca gac ttc aat ctg act ggg tca cag agc aac atg cta aag | 2688 |
| Lys Ser Pro Asp Phe Asn Leu Thr Gly Ser Gln Ser Asn Met Leu Lys |      |
| 885   | 890  |
| ctt ctc cgc tca gct aaa aac atc tcc aac atg tcc aac atg aac tcc | 2736 |
| Leu Leu Arg Ser Ala Lys Asn Ile Ser Asn Met Ser Asn Met Asn Ser |      |
| 900   | 905  |
|   | 910  |

|   |      |
|---|------|
| tcg cga atg gac tca ccc aaa aga gct gct gac ttc atc caa aga ggc | 2784 |
| Ser Arg Met Asp Ser Pro Lys Arg Ala Ala Asp Phe Ile Gln Arg Gly |      |
| 915 920 925   |      |
| tca ctt att gtg gac atg gtt tca gac aag gga aat ttg ata tac tca | 2832 |
| Ser Leu Ile Val Asp Met Val Ser Asp Lys Gly Asn Leu Ile Tyr Ser |      |
| 930 935 940   |      |
| gat aac agg tcc ttt caa ggg aag gac agt ata ttt gga gaa aac atg | 2880 |
| Asp Asn Arg Ser Phe Gln Gly Lys Asp Ser Ile Phe Gly Glu Asn Met |      |
| 945 950 955 960   |      |
| aat gaa ctg caa aca ttt gtg gcc aac agg cac aag gat agt ctc agt | 2928 |
| Asn Glu Leu Gln Thr Phe Val Ala Asn Arg His Lys Asp Ser Leu Ser |      |
| 965 970 975   |      |
| aac tat gtg ttt cag gga cag cat cct ctc act ctc aat gag tcc aac | 2976 |
| Asn Tyr Val Phe Gln Gly Gln His Pro Leu Thr Leu Asn Glu Ser Asn |      |
| 980 985 990   |      |
| ccc aac aca gtg gag gtg gct gtc agc act gaa tcc aaa ggg aac tcc | 3024 |
| Pro Asn Thr Val Glu Val Ala Val Ser Thr Glu Ser Lys Gly Asn Ser |      |
| 995 1000 1005   |      |
| cga ccc cgg cag ctt tgg aag aaa tcc atg gag tct cta cgc cag gat | 3072 |
| Arg Pro Arg Gln Leu Trp Lys Lys Ser Met Glu Ser Leu Arg Gln Asp |      |
| 1010 1015 1020  |      |
| tct cta aac cag aac cca gtc tcc cag agg gat gag aag act gca gag | 3120 |
| Ser Leu Asn Gln Asn Pro Val Ser Gln Arg Asp Glu Lys Thr Ala Glu |      |
| 1025 1030 1035 1040   |      |
| aat agg acc cac tcc cta aag agt cct agg tat ctt cca gaa gag gta | 3168 |
| Asn Arg Thr His Ser Leu Lys Ser Pro Arg Tyr Leu Pro Glu Glu Val |      |
| 1045 1050 1055  |      |
| gcc cat tct gac att tct gaa acc tca agc cgg gcc aca tgc cac agg | 3216 |
| Ala His Ser Asp Ile Ser Glu Thr Ser Ser Arg Ala Thr Cys His Arg |      |

|   |      |      |      |
|---|------|------|------|
| 1060  | 1065 | 1070 |      |
| gag cca gat aat aat aag aac cac aag acc aag gat aac ttc aaa agg |      |      | 3264 |
| Glu Pro Asp Asn Asn Lys Asn His Lys Thr Lys Asp Asn Phe Lys Arg |      |      |      |
| 1075  | 1080 | 1085 |      |
| tca atg gcc tct aaa tac ccc aag gac tgt agt gag gtt gaa cgt acc |      |      | 3312 |
| Ser Met Ala Ser Lys Tyr Pro Lys Asp Cys Ser Glu Val Glu Arg Thr |      |      |      |
| 1090  | 1095 | 1100 |      |
| tac gtg aaa acc aaa gca agt tct ccc agg gat aag atc tac acc atc |      |      | 3360 |
| Tyr Val Lys Thr Lys Ala Ser Ser Pro Arg Asp Lys Ile Tyr Thr Ile |      |      |      |
| 1105  | 1110 | 1115 | 1120 |
| gat ggt gag aag gag ccc agc ttc cac tta gat cct cca cag ttc att |      |      | 3408 |
| Asp Gly Glu Lys Glu Pro Ser Phe His Leu Asp Pro Pro Gln Phe Ile |      |      |      |
| 1125  | 1130 | 1135 |      |
| gaa aac ata gtc ttg cct gag aat gtg gac ttc cca gat acc tac caa |      |      | 3456 |
| Glu Asn Ile Val Leu Pro Glu Asn Val Asp Phe Pro Asp Thr Tyr Gln |      |      |      |
| 1140  | 1145 | 1150 |      |
| gat cac aat gag aat ttc cgc aag ggg gac tcc aca ctg ccc atg aac |      |      | 3504 |
| Asp His Asn Glu Asn Phe Arg Lys Gly Asp Ser Thr Leu Pro Met Asn |      |      |      |
| 1155  | 1160 | 1165 |      |
| agg aac cca cta cac aat gaa gat ggg ctt ccc aac aat gac cag tat |      |      | 3552 |
| Arg Asn Pro Leu His Asn Glu Asp Gly Leu Pro Asn Asn Asp Gln Tyr |      |      |      |
| 1170  | 1175 | 1180 |      |
| aaa ctc tat gcc aag cac ttt acc ttg aaa gac aag ggt tcc cca cat |      |      | 3600 |
| Lys Leu Tyr Ala Lys His Phe Thr Leu Lys Asp Lys Gly Ser Pro His |      |      |      |
| 1185  | 1190 | 1195 | 1200 |
| agt gag ggc agt gat cga tat cgg cag aac tcc acg cat tgc aga agc |      |      | 3648 |
| Ser Glu Gly Ser Asp Arg Tyr Arg Gln Asn Ser Thr His Cys Arg Ser |      |      |      |
| 1205  | 1210 | 1215 |      |
| tgc ctc tca aac ctg ccc acc tac tca ggc cac ttt acc atg aga tct |      |      | 3696 |

Cys Leu Ser Asn Leu Pro Thr Tyr Ser Gly His Phe Thr Met Arg Ser  
 1220 1225 1230  
 cct ttc aag tgt gat gcc tgt ctg cgg atg ggg aac ctc tat gac att 3744  
 Pro Phe Lys Cys Asp Ala Cys Leu Arg Met Gly Asn Leu Tyr Asp Ile  
 1235 1240 1245  
 gat gaa gac cag atg ctt cag gag aca ggc aac cca gct act cgt gag 3792  
 Asp Glu Asp Gln Met Leu Gln Glu Thr Gly Asn Pro Ala Thr Arg Glu  
 1250 1255 1260  
 gag gcc tac cag cag gac tgg tca cag aac aac gcc ctc cag ttc cag 3840  
 Glu Ala Tyr Gln Gln Asp Trp Ser Gln Asn Asn Ala Leu Gln Phe Gln  
 1265 1270 1275 1280  
 aag aac aag cta aag att aat cga cag cac tcc tat gat aac att ctc 3888  
 Lys Asn Lys Leu Lys Ile Asn Arg Gln His Ser Tyr Asp Asn Ile Leu  
 1285 1290 1295  
 gac aaa ccc agg gag ata gac ctt agc agg ccc tct cgt agc ata agc 3936  
 Asp Lys Pro Arg Glu Ile Asp Leu Ser Arg Pro Ser Arg Ser Ile Ser  
 1300 1305 1310  
 ctc aag gac agg gaa agg cta ctg gag ggc aac tta tac ggg agc ctg 3984  
 Leu Lys Asp Arg Glu Arg Leu Leu Glu Gly Asn Leu Tyr Gly Ser Leu  
 1315 1320 1325  
 ttc agt gtc ccc tca agc aaa ctc ttg ggg aac aaa agc tcc ctt ttc 4032  
 Phe Ser Val Pro Ser Ser Lys Leu Leu Gly Asn Lys Ser Ser Leu Phe  
 1330 1335 1340  
 ccc caa ggt ctg gag gac agc aag agg agc aaa tct ctc ttg cca gac 4080  
 Pro Gln Gly Leu Glu Asp Ser Lys Arg Ser Lys Ser Leu Leu Pro Asp  
 1345 1350 1355 1360  
 cat acc tct gat aat cct ttc ctc cac acg tac ggg gat gac caa cgc 4128  
 His Thr Ser Asp Asn Pro Phe Leu His Thr Tyr Gly Asp Asp Gln Arg  
 1365 1370 1375

tta gtt att ggg aga tgt ccc tcg gac cct tac aaa cac tca ttg cca 4176  
 Leu Val Ile Gly Arg Cys Pro Ser Asp Pro Tyr Lys His Ser Leu Pro

1380

1385

1390

tca cag gca gta aat gac agc tat ctt cgg tca tcc ttg agg tca aca 4224  
 Ser Gln Ala Val Asn Asp Ser Tyr Leu Arg Ser Ser Leu Arg Ser Thr

1395

1400

1405

gca tca tat tgc tcc agg gac agt cgg ggc cac agt gat gtg tat att 4272  
 Ala Ser Tyr Cys Ser Arg Asp Ser Arg Gly His Ser Asp Val Tyr Ile

1410

1415

1420

tca gag cat gtt atg cct tat gct gca aat aag aat aac atg tac tct 4320  
 Ser Glu His Val Met Pro Tyr Ala Ala Asn Lys Asn Asn Met Tyr Ser

1425

1430

1435

1440

acc ccc agg gtt tta aat tcc tgc agc aat aga cgt gtg tac aag aaa 4368  
 Thr Pro Arg Val Leu Asn Ser Cys Ser Asn Arg Arg Val Tyr Lys Lys

1445

1450

1455

atg cct agt att gaa tct gat gtc taa gatcttccat cagtgtttat 4415  
 Met Pro Ser Ile Glu Ser Asp Val

1460

1465

ctataaggaa acatgtagaa tggccaacat tatagagggt aaacgttggga tgtccaatag 4475  
 caccctacta ggaggaagag gatatagga ggtatit 4512

&lt;210&gt; 953

&lt;211&gt; 1464

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 953

Met Gly Arg Leu Gly Tyr Trp Thr Leu Leu Val Leu Pro Ala Leu Leu

1

5

10

15

Val Trp His Gly Pro Ala Gln Asn Ala Ala Ala Glu Lys Gly Thr Pro  
 20 25 30  
 Ala Leu Asn Ile Ala Val Leu Leu Gly His Ser His Asp Val Thr Glu  
 35 40 45  
 Arg Glu Leu Arg Asn Leu Trp Gly Pro Glu Gln Ala Thr Gly Leu Pro  
 50 55 60  
 Leu Asp Val Asn Val Val Ala Leu Leu Met Asn Arg Thr Asp Pro Lys  
 65 70 75 80  
 Ser Leu Ile Thr His Val Cys Asp Leu Met Ser Gly Ala Arg Ile His  
 85 90 95  
 Gly Leu Val Phe Gly Asp Asp Thr Asp Gln Glu Ala Val Ala Gln Met  
 100 105 110  
 Leu Asp Phe Ile Ser Ser Gln Thr Phe Ile Pro Ile Leu Gly Ile His  
 115 120 125  
 Gly Gly Ala Ser Met Ile Met Ala Asp Lys Asp Pro Thr Ser Thr Phe  
 130 135 140  
 Phe Gln Phe Gly Ala Ser Ile Gln Gln Gln Ala Thr Val Met Leu Lys  
 145 150 155 160  
 Ile Met Gln Asp Tyr Asp Trp His Val Phe Ser Leu Val Thr Thr Ile  
 165 170 175  
 Phe Pro Gly Tyr Arg Asp Phe Ile Ser Phe Ile Lys Thr Thr Val Asp  
 180 185 190  
 Asn Ser Phe Val Gly Trp Asp Met Gln Asn Val Ile Thr Leu Asp Thr  
 195 200 205  
 Ser Phe Glu Asp Ala Lys Thr Gln Val Gln Leu Lys Lys Ile His Ser  
 210 215 220  
 Ser Val Ile Leu Leu Tyr Cys Ser Lys Asp Glu Ala Val Leu Ile Leu  
 225 230 235 240  
 Ser Glu Ala Arg Ser Leu Gly Leu Thr Gly Tyr Asp Phe Phe Trp Ile

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 245 |     | 250 |     | 255 |     |     |     |     |     |     |     |     |     |     |
| Val | Pro | Ser | Leu | Val | Ser | Gly | Asn | Thr | Glu | Leu | Ile | Pro | Lys | Glu | Phe |
|     | 260 |     | 265 |     | 270 |     |     |     |     |     |     |     |     |     |     |
| Pro | Ser | Gly | Leu | Ile | Ser | Val | Ser | Tyr | Asp | Asp | Trp | Asp | Tyr | Ser | Leu |
|     | 275 |     | 280 |     | 285 |     |     |     |     |     |     |     |     |     |     |
| Glu | Ala | Arg | Val | Arg | Asp | Gly | Leu | Gly | Ile | Leu | Thr | Thr | Ala | Ala | Ser |
|     | 290 |     | 295 |     | 300 |     |     |     |     |     |     |     |     |     |     |
| Ser | Met | Leu | Glu | Lys | Phe | Ser | Tyr | Ile | Pro | Glu | Ala | Lys | Ala | Ser | Cys |
| 305 |     |     | 310 |     | 315 |     |     |     |     |     |     |     |     | 320 |     |
| Tyr | Gly | Gln | Thr | Glu | Lys | Pro | Glu | Thr | Pro | Leu | His | Thr | Leu | His | Gln |
|     | 325 |     | 330 |     | 335 |     |     |     |     |     |     |     |     |     |     |
| Phe | Met | Val | Asn | Val | Thr | Trp | Asp | Gly | Lys | Asp | Leu | Ser | Phe | Thr | Glu |
|     | 340 |     | 345 |     | 350 |     |     |     |     |     |     |     |     |     |     |
| Glu | Gly | Tyr | Gln | Val | His | Pro | Arg | Leu | Val | Val | Ile | Val | Leu | Asn | Lys |
|     | 355 |     | 360 |     | 365 |     |     |     |     |     |     |     |     |     |     |
| Asp | Arg | Glu | Trp | Glu | Lys | Val | Gly | Lys | Trp | Glu | Asn | Gln | Thr | Leu | Arg |
|     | 370 |     | 375 |     | 380 |     |     |     |     |     |     |     |     |     |     |
| Leu | Arg | His | Ala | Val | Trp | Pro | Arg | Tyr | Lys | Ser | Phe | Ser | Asp | Cys | Glu |
| 385 |     |     | 390 |     | 395 |     |     |     |     |     |     |     |     | 400 |     |
| Pro | Asp | Asp | Asn | His | Leu | Ser | Ile | Val | Thr | Leu | Glu | Glu | Ala | Pro | Phe |
|     | 405 |     | 410 |     | 415 |     |     |     |     |     |     |     |     |     |     |
| Val | Ile | Val | Glu | Asp | Ile | Asp | Pro | Leu | Thr | Glu | Thr | Cys | Val | Arg | Asn |
|     | 420 |     | 425 |     | 430 |     |     |     |     |     |     |     |     |     |     |
| Thr | Val | Pro | Cys | Arg | Lys | Phe | Val | Lys | Ile | Asn | Asn | Ser | Thr | Asn | Glu |
|     | 435 |     | 440 |     | 445 |     |     |     |     |     |     |     |     |     |     |
| Gly | Met | Asn | Val | Lys | Lys | Cys | Cys | Lys | Gly | Phe | Cys | Ile | Asp | Ile | Leu |
|     | 450 |     | 455 |     | 460 |     |     |     |     |     |     |     |     |     |     |
| Lys | Lys | Leu | Ser | Arg | Thr | Val | Lys | Phe | Thr | Tyr | Asp | Leu | Tyr | Leu | Val |
| 465 |     |     | 470 |     | 475 |     |     |     |     |     |     |     |     | 480 |     |

|   |     |     |     |
|---|-----|-----|-----|
| Thr Asn Gly Lys His Gly Lys Lys Val Asn Asn Val Trp Asn Gly Met |     |     |     |
|   | 485 | 490 | 495 |
| Ile Gly Glu Val Val Tyr Gln Arg Ala Val Met Ala Val Gly Ser Leu |     |     |     |
|   | 500 | 505 | 510 |
| Thr Ile Asn Glu Glu Arg Ser Glu Val Val Asp Phe Ser Val Pro Phe |     |     |     |
|   | 515 | 520 | 525 |
| Val Glu Thr Gly Ile Ser Val Met Val Ser Arg Ser Asn Gly Thr Val |     |     |     |
|   | 530 | 535 | 540 |
| Ser Pro Ser Ala Phe Leu Glu Pro Phe Ser Ala Ser Val Trp Val Met |     |     |     |
|   | 545 | 550 | 555 |
| Met Phe Val Met Leu Leu Ile Val Ser Ala Ile Ala Val Phe Val Phe |     |     |     |
|   | 565 | 570 | 575 |
| Glu Tyr Phe Ser Pro Val Gly Tyr Asn Arg Asn Leu Ala Lys Gly Lys |     |     |     |
|   | 580 | 585 | 590 |
| Ala Pro His Gly Pro Ser Phe Thr Ile Gly Lys Ala Ile Trp Leu Leu |     |     |     |
|   | 595 | 600 | 605 |
| Trp Gly Leu Val Phe Asn Asn Ser Val Pro Val Gln Asn Pro Lys Gly |     |     |     |
|   | 610 | 615 | 620 |
| Thr Thr Ser Lys Ile Met Val Ser Val Trp Ala Phe Phe Ala Val Ile |     |     |     |
|   | 625 | 630 | 635 |
| Phe Leu Ala Ser Tyr Thr Ala Asn Leu Ala Ala Phe Met Ile Gln Glu |     |     |     |
|   | 645 | 650 | 655 |
| Glu Phe Val Asp Gln Val Thr Gly Leu Ser Asp Lys Lys Phe Gln Arg |     |     |     |
|   | 660 | 665 | 670 |
| Pro His Asp Tyr Ser Pro Pro Phe Arg Phe Gly Thr Val Pro Asn Gly |     |     |     |
|   | 675 | 680 | 685 |
| Ser Thr Glu Arg Asn Ile Arg Asn Asn Tyr Pro Tyr Met His Gln Tyr |     |     |     |
|   | 690 | 695 | 700 |
| Met Thr Lys Phe Asn Gln Arg Gly Val Glu Asp Ala Leu Val Ser Leu |     |     |     |



|   |     |     |     |
|---|-----|-----|-----|
| 705   | 710 | 715 | 720 |
| Lys Thr Gly Lys Leu Asp Ala Phe Ile Tyr Asp Ala Ala Val Leu Asn |     |     |     |
| 725   | 730 | 735 |     |
| Tyr Lys Ala Gly Arg Asp Glu Gly Cys Lys Leu Val Thr Ile Gly Ser |     |     |     |
| 740   | 745 | 750 |     |
| Gly Tyr Ile Phe Ala Thr Thr Gly Tyr Gly Ile Ala Leu Gln Lys Gly |     |     |     |
| 755   | 760 | 765 |     |
| Ser Pro Trp Lys Arg Gln Ile Asp Leu Ala Leu Leu Gln Phe Val Gly |     |     |     |
| 770   | 775 | 780 |     |
| Asp Gly Glu Met Glu Glu Leu Glu Thr Leu Trp Leu Thr Gly Ile Cys |     |     |     |
| 785   | 790 | 795 | 800 |
| His Asn Glu Lys Asn Glu Val Met Ser Ser Gln Leu Asp Ile Asp Asn |     |     |     |
| 805   | 810 | 815 |     |
| Met Ala Gly Val Phe Tyr Met Leu Ala Ala Ala Met Ala Leu Ser Leu |     |     |     |
| 820   | 825 | 830 |     |
| Ile Thr Phe Ile Trp Glu His Leu Phe Tyr Trp Lys Leu Arg Phe Cys |     |     |     |
| 835   | 840 | 845 |     |
| Phe Thr Gly Val Cys Ser Asp Arg Pro Gly Leu Leu Phe Ser Ile Ser |     |     |     |
| 850   | 855 | 860 |     |
| Arg Gly Ile Tyr Ser Cys Ile His Gly Val His Ile Glu Glu Lys Lys |     |     |     |
| 865   | 870 | 875 | 880 |
| Lys Ser Pro Asp Phe Asn Leu Thr Gly Ser Gln Ser Asn Met Leu Lys |     |     |     |
| 885   | 890 | 895 |     |
| Leu Leu Arg Ser Ala Lys Asn Ile Ser Asn Met Ser Asn Met Asn Ser |     |     |     |
| 900   | 905 | 910 |     |
| Ser Arg Met Asp Ser Pro Lys Arg Ala Ala Asp Phe Ile Gln Arg Gly |     |     |     |
| 915   | 920 | 925 |     |
| Ser Leu Ile Val Asp Met Val Ser Asp Lys Gly Asn Leu Ile Tyr Ser |     |     |     |
| 930   | 935 | 940 |     |

Asp Asn Arg Ser Phe Gln Gly Lys Asp Ser Ile Phe Gly Glu Asn Met  
 945                      950                      955                      960  
 Asn Glu Leu Gln Thr Phe Val Ala Asn Arg His Lys Asp Ser Leu Ser  
                     965                      970                      975  
 Asn Tyr Val Phe Gln Gly Gln His Pro Leu Thr Leu Asn Glu Ser Asn  
                     980                      985                      990  
 Pro Asn Thr Val Glu Val Ala Val Ser Thr Glu Ser Lys Gly Asn Ser  
                     995                      1000                      1005  
 Arg Pro Arg Gln Leu Trp Lys Lys Ser Met Glu Ser Leu Arg Gln Asp  
                     1010                      1015                      1020  
 Ser Leu Asn Gln Asn Pro Val Ser Gln Arg Asp Glu Lys Thr Ala Glu  
 025                      1030                      1035                      1040  
 Asn Arg Thr His Ser Leu Lys Ser Pro Arg Tyr Leu Pro Glu Glu Val  
                     1045                      1050                      1055  
 Ala His Ser Asp Ile Ser Glu Thr Ser Ser Arg Ala Thr Cys His Arg  
                     1060                      1065                      1070  
 Glu Pro Asp Asn Asn Lys Asn His Lys Thr Lys Asp Asn Phe Lys Arg  
                     1075                      1080                      1085  
 Ser Met Ala Ser Lys Tyr Pro Lys Asp Cys Ser Glu Val Glu Arg Thr  
                     1090                      1095                      1100  
 Tyr Val Lys Thr Lys Ala Ser Ser Pro Arg Asp Lys Ile Tyr Thr Ile  
 105                      1110                      1115                      1120  
 Asp Gly Glu Lys Glu Pro Ser Phe His Leu Asp Pro Pro Gln Phe Ile  
                     1125                      1130                      1135  
 Glu Asn Ile Val Leu Pro Glu Asn Val Asp Phe Pro Asp Thr Tyr Gln  
                     1140                      1145                      1150  
 Asp His Asn Glu Asn Phe Arg Lys Gly Asp Ser Thr Leu Pro Met Asn  
                     1155                      1160                      1165  
 Arg Asn Pro Leu His Asn Glu Asp Gly Leu Pro Asn Asn Asp Gln Tyr

|   |      |      |
|---|------|------|
| 1170  | 1175 | 1180 |
| Lys Leu Tyr Ala Lys His Phe Thr Leu Lys Asp Lys Gly Ser Pro His |      |      |
| 185   | 1190 | 1195 |
| Ser Glu Gly Ser Asp Arg Tyr Arg Gln Asn Ser Thr His Cys Arg Ser |      | 1200 |
|   | 1205 | 1210 |
| Cys Leu Ser Asn Leu Pro Thr Tyr Ser Gly His Phe Thr Met Arg Ser |      | 1215 |
|   | 1220 | 1225 |
| Pro Phe Lys Cys Asp Ala Cys Leu Arg Met Gly Asn Leu Tyr Asp Ile |      | 1230 |
|   | 1235 | 1240 |
| Asp Glu Asp Gln Met Leu Gln Glu Thr Gly Asn Pro Ala Thr Arg Glu |      | 1245 |
|   | 1250 | 1255 |
| Glu Ala Tyr Gln Gln Asp Trp Ser Gln Asn Asn Ala Leu Gln Phe Gln |      | 1260 |
| 265   | 1270 | 1275 |
| Lys Asn Lys Leu Lys Ile Asn Arg Gln His Ser Tyr Asp Asn Ile Leu |      | 1280 |
|   | 1285 | 1290 |
| Asp Lys Pro Arg Glu Ile Asp Leu Ser Arg Pro Ser Arg Ser Ile Ser |      | 1295 |
|   | 1300 | 1305 |
| Leu Lys Asp Arg Glu Arg Leu Leu Glu Gly Asn Leu Tyr Gly Ser Leu |      | 1310 |
|   | 1315 | 1320 |
| Phe Ser Val Pro Ser Ser Lys Leu Leu Gly Asn Lys Ser Ser Leu Phe |      | 1325 |
|   | 1330 | 1335 |
| Pro Gln Gly Leu Glu Asp Ser Lys Arg Ser Lys Ser Leu Leu Pro Asp |      | 1340 |
| 345   | 1350 | 1355 |
| His Thr Ser Asp Asn Pro Phe Leu His Thr Tyr Gly Asp Asp Gln Arg |      | 1360 |
|   | 1365 | 1370 |
| Leu Val Ile Gly Arg Cys Pro Ser Asp Pro Tyr Lys His Ser Leu Pro |      | 1375 |
|   | 1380 | 1385 |
| Ser Gln Ala Val Asn Asp Ser Tyr Leu Arg Ser Ser Leu Arg Ser Thr |      | 1390 |
|   | 1395 | 1400 |
|   |      | 1405 |

Ala Ser Tyr Cys Ser Arg Asp Ser Arg Gly His Ser Asp Val Tyr Ile  
 1410 1415 1420  
 Ser Glu His Val Met Pro Tyr Ala Ala Asn Lys Asn Asn Met Tyr Ser  
 425 1430 1435 1440  
 Thr Pro Arg Val Leu Asn Ser Cys Ser Asn Arg Arg Val Tyr Lys Lys  
 1445 1450 1455  
 Met Pro Ser Ile Glu Ser Asp Val  
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<211> 3483

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (30).. (2087)

<400> 954

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 Arg Cys Asp Leu Glu Ile Gln Ala Asn Gly Arg Asp His His Thr Ala  
 10 15 20  
 gac cta tgc caa gag aaa ctg ctg gtg cgt cgt ggc cag cgc ttc cgg 149  
 Asp Leu Cys Gln Glu Lys Leu Leu Val Arg Arg Gly Gln Arg Phe Arg  
 25 30 35 40  
 ctg act ctg tac ttc gag ggc cgt ggc tac cag gcc agc gtg gac agc 197

|   |     |
|---|-----|
| Leu Thr Leu Tyr Phe Glu Gly Arg Gly Tyr Gln Ala Ser Val Asp Ser |     |
| 45  | 50  |
| ctc acg ttc ggt gct gtg acc ggc cca gat ccc agt gaa gag gca ggg | 245 |
| Leu Thr Phe Gly Ala Val Thr Gly Pro Asp Pro Ser Glu Glu Ala Gly |     |
| 60  | 65  |
| acc aag gcc cgc ttt tca ctg tct gac aat gtg gag gag gga tct tgg | 293 |
| Thr Lys Ala Arg Phe Ser Leu Ser Asp Asn Val Glu Glu Gly Ser Trp |     |
| 75  | 80  |
| tca gcc tca gtg ctg gac cag cag gac aat gtc ctc tcg cta cag ctc | 341 |
| Ser Ala Ser Val Leu Asp Gln Gln Asp Asn Val Leu Ser Leu Gln Leu |     |
| 90  | 95  |
| atg acc cca gcc aat gct cct att ggc ctg tac cgt ctc agc cta gag | 389 |
| Cys Thr Pro Ala Asn Ala Pro Ile Gly Leu Tyr Arg Leu Ser Leu Glu |     |
| 105   | 110 |
| gct tct act ggc tac cag ggc tcc agc ttt gtg ctg ggc cac ttc atc | 437 |
| Ala Ser Thr Gly Tyr Gln Gly Ser Ser Phe Val Leu Gly His Phe Ile |     |
| 125   | 130 |
| ttg ctc tac aat gcc tgg tgc cca gcc gat gat gtg tac cta gac tca | 485 |
| Leu Leu Tyr Asn Ala Trp Cys Pro Ala Asp Asp Val Tyr Leu Asp Ser |     |
| 140   | 145 |
| gag gag gag cga cgg gaa tat gtc ctt acg caa cag ggc ttc atc tac | 533 |
| Glu Glu Glu Arg Arg Glu Tyr Val Leu Thr Gln Gln Gly Phe Ile Tyr |     |
| 155   | 160 |
| caa ggc tct gtc aag ttc atc aag agt gtg cct tgg aac ttt ggg cag | 581 |
| Gln Gly Ser Val Lys Phe Ile Lys Ser Val Pro Trp Asn Phe Gly Gln |     |
| 170   | 175 |
| ttc caa gat gga atc ctg gac acc tgc ctg atg ctg ttg gat atg aac | 629 |
| Phe Gln Asp Gly Ile Leu Asp Thr Cys Leu Met Leu Leu Asp Met Asn |     |
| 185   | 190 |
|   | 195 |
|   | 200 |

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ccc aag ttc ctg aag aac cgt agt cgg gac tgc tca cgc cgc agc agt 677
Pro Lys Phe Leu Lys Asn Arg Ser Arg Asp Cys Ser Arg Arg Ser Ser
      205              210              215

ccc atc tat gtg ggc cgc gtg gtg agc gac atg gtc aac tgc aat gat 725
Pro Ile Tyr Val Gly Arg Val Val Ser Asp Met Val Asn Cys Asn Asp
      220              225              230

gac cag ggt gtg ctt ctg ggc cgc tgg gac aac aac tat ggg gat ggt 773
Asp Gln Gly Val Leu Leu Gly Arg Trp Asp Asn Asn Tyr Gly Asp Gly
      235              240              245

atc agt ccc atg gcc tgg att ggc agt gtg gac att ctg cgg cgt tgg 821
Ile Ser Pro Met Ala Trp Ile Gly Ser Val Asp Ile Leu Arg Arg Trp
      250              255              260

aag gaa cac ggc tgt cag caa gtc aag tac ggc cag tgc tgg gtg ttt 869
Lys Glu His Gly Cys Gln Gln Val Lys Tyr Gly Gln Cys Trp Val Phe
      265              270              275              280

gca gcg gtg gcc tgc aca gtg ctg cgg tgc ctc ggc atc cct acc aga 917
Ala Ala Val Ala Cys Thr Val Leu Arg Cys Leu Gly Ile Pro Thr Arg
      285              290              295

gtg gtg acc aac tac aac tcc gcc cac gac cag aac agc aac ctg ctc 965
Val Val Thr Asn Tyr Asn Ser Ala His Asp Gln Asn Ser Asn Leu Leu
      300              305              310

atc gag tac ttc cga aat gag ttt ggg gag ctg gag acg aac aag agc 1013
Ile Glu Tyr Phe Arg Asn Glu Phe Gly Glu Leu Glu Thr Asn Lys Ser
      315              320              325

gag atg atc tgg aac ttc cac tgc tgg gtg gag tcc tgg atg acc agg 1061
Glu Met Ile Trp Asn Phe His Cys Trp Val Glu Ser Trp Met Thr Arg
      330              335              340

cca gac cta cag ccg gga tat gag ggg tgg cag gcc cta gac ccc aca 1109
Pro Asp Leu Gln Pro Gly Tyr Glu Gly Trp Gln Ala Leu Asp Pro Thr

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|   |      |     |     |  |
|---|------|-----|-----|--|
| 345   | 350  | 355 | 360 |  |
| cca cag gag aag agc gaa ggg aca tac tgt tgt ggc cca gtc tca gtg | 1157 |     |     |  |
| Pro Gln Glu Lys Ser Glu Gly Thr Tyr Cys Cys Gly Pro Val Ser Val |      |     |     |  |
| 365   | 370  | 375 |     |  |
| cga gcc atc aag gag gga gac ctg agt acc aag tat gat gca ccc ttc | 1205 |     |     |  |
| Arg Ala Ile Lys Glu Gly Asp Leu Ser Thr Lys Tyr Asp Ala Pro Phe |      |     |     |  |
| 380   | 385  | 390 |     |  |
| gtg ttt gcc gag gtc aac gct gat gtg gtg gac tgg atc cgg cag gac | 1253 |     |     |  |
| Val Phe Ala Glu Val Asn Ala Asp Val Val Asp Trp Ile Arg Gln Asp |      |     |     |  |
| 395   | 400  | 405 |     |  |
| gaa ggg tct gtg ctc aaa tgg atg aac cgt tcc ttg atc gtg ggg cag | 1301 |     |     |  |
| Glu Gly Ser Val Leu Lys Trp Met Asn Arg Ser Leu Ile Val Gly Gln |      |     |     |  |
| 410   | 415  | 420 |     |  |
| aag atc agc act aag agt gtg ggc cgt gat gac cgg gag gac atc acc | 1349 |     |     |  |
| Lys Ile Ser Thr Lys Ser Val Gly Arg Asp Asp Arg Glu Asp Ile Thr |      |     |     |  |
| 425   | 430  | 435 | 440 |  |
| cat aca tac aag tac cca gag ggg tca ccc gag gag agg gaa gtc ttc | 1397 |     |     |  |
| His Thr Tyr Lys Tyr Pro Glu Gly Ser Pro Glu Glu Arg Glu Val Phe |      |     |     |  |
| 445   | 450  | 455 |     |  |
| acc aag gcc aac cac ctg aac aaa ctg gca gag aaa gag gag aca ggg | 1445 |     |     |  |
| Thr Lys Ala Asn His Leu Asn Lys Leu Ala Glu Lys Glu Glu Thr Gly |      |     |     |  |
| 460   | 465  | 470 |     |  |
| gtg gcc atg cgc atc cga gtg ggg cag tat gag cat ggc aac gac ttc | 1493 |     |     |  |
| Val Ala Met Arg Ile Arg Val Gly Gln Tyr Glu His Gly Asn Asp Phe |      |     |     |  |
| 475   | 480  | 485 |     |  |
| gac gtg ttt gcc cac atc ggc aac gac acc tcg gag act cga gag tgt | 1541 |     |     |  |
| Asp Val Phe Ala His Ile Gly Asn Asp Thr Ser Glu Thr Arg Glu Cys |      |     |     |  |
| 490   | 495  | 500 |     |  |
| cgt ctc ctg ctc tgt gcc cgc act gtc agc tac aac ggg gtg ctg ggg | 1589 |     |     |  |

|   |      |
|---|------|
| Arg Leu Leu Leu Cys Ala Arg Thr Val Ser Tyr Asn Gly Val Leu Gly |      |
| 505   | 510  |
| 515   | 520  |
| ccc gag tgt ggc act gag gac atc aac ctg acc ctg gat ccc tac tct | 1637 |
| Pro Glu Cys Gly Thr Glu Asp Ile Asn Leu Thr Leu Asp Pro Tyr Ser |      |
| 525   | 530  |
| 535   |      |
| gag aac agc atc cca ctt cga atc ctc tac gag aag tac agc gac tgc | 1685 |
| Glu Asn Ser Ile Pro Leu Arg Ile Leu Tyr Glu Lys Tyr Ser Asp Cys |      |
| 540   | 545  |
| 550   |      |
| ctg aca gag tca aac ctc atc aag gtg cgg ggc ctt ctc atc gaa cca | 1733 |
| Leu Thr Glu Ser Asn Leu Ile Lys Val Arg Gly Leu Leu Ile Glu Pro |      |
| 555   | 560  |
| 565   |      |
| gct gcc aac agc tac ctg ctg gct gag aga gat ctc tac gtg gag aat | 1781 |
| Ala Ala Asn Ser Tyr Leu Leu Ala Glu Arg Asp Leu Tyr Val Glu Asn |      |
| 570   | 575  |
| 580   |      |
| ccc gaa atc aag atc cgg gtt ttg gga gaa ccc aag caa aac cgc aaa | 1829 |
| Pro Glu Ile Lys Ile Arg Val Leu Gly Glu Pro Lys Gln Asn Arg Lys |      |
| 585   | 590  |
| 595   | 600  |
| ctg gtg gct gag gtg tcc ctg aag aac cca ctt tcc gat ccc ctg tat | 1877 |
| Leu Val Ala Glu Val Ser Leu Lys Asn Pro Leu Ser Asp Pro Leu Tyr |      |
| 605   | 610  |
| 615   |      |
| gac tgc atc ttc act gtg gag ggg gct ggc ctg acc aag gag cag aag | 1925 |
| Asp Cys Ile Phe Thr Val Glu Gly Ala Gly Leu Thr Lys Glu Gln Lys |      |
| 620   | 625  |
| 630   |      |
| tct gtg gaa gtc tca gac ccg gtg cca gcg ggc gat ttg gtc aag gca | 1973 |
| Ser Val Glu Val Ser Asp Pro Val Pro Ala Gly Asp Leu Val Lys Ala |      |
| 635   | 640  |
| 645   |      |
| cgg gtc gac ctg tcc ccg act gat att ggc ctc cac aag ctg gtg gtg | 2021 |
| Arg Val Asp Leu Ser Pro Thr Asp Ile Gly Leu His Lys Leu Val Val |      |
| 650   | 655  |
| 660   |      |



aac ttc cag tgt gac aag ctg aag tcg gtg aag ggt tac cgg aat gtt 2069

Asn Phe Gln Cys Asp Lys Leu Lys Ser Val Lys Gly Tyr Arg Asn Val

665

670

675

680

atc atc ggc ccg gcc taa gggacccctt cccagactca accccaccac 2117

Ile Ile Gly Pro Ala

685

ctgccaaacc ccattcaacc tggctctttat cctaagataa tgagcaactt caccccatc 2177

aggctgacat ggctgcctgg gggcctcttc agaagacagt gtacttctgg cccaatcctg 2237

tictctigga tctatttccc catcctgttc ccttagtgtg cacggaaggt cctgtgccga 2297

cacagtgggt acctgtggaa agggtaagag gagagccatc accagcactc tgtatctctg 2357

cattgtttga actgtctctg gagcctcagc gcaagcacaaggaggaccgtg cgcatggcac 2417

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gaaccataatg tgcattggtac ttagatctta cggcatacca gctagcgtac atccgtgtaa 2537

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atgtgaacac tgaataaag gtctattttt cacattcacg gaattc 3483

&lt;210&gt; 955

&lt;211&gt; 685

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 955

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 1 5 10 15  
 Asn Gly Arg Asp His His Thr Ala Asp Leu Cys Gln Glu Lys Leu Leu  
 20 25 30  
 Val Arg Arg Gly Gln Arg Phe Arg Leu Thr Leu Tyr Phe Glu Gly Arg  
 35 40 45  
 Gly Tyr Gln Ala Ser Val Asp Ser Leu Thr Phe Gly Ala Val Thr Gly  
 50 55 60  
 Pro Asp Pro Ser Glu Glu Ala Gly Thr Lys Ala Arg Phe Ser Leu Ser  
 65 70 75 80  
 Asp Asn Val Glu Glu Gly Ser Trp Ser Ala Ser Val Leu Asp Gln Gln  
 85 90 95  
 Asp Asn Val Leu Ser Leu Gln Leu Cys Thr Pro Ala Asn Ala Pro Ile  
 100 105 110  
 Gly Leu Tyr Arg Leu Ser Leu Glu Ala Ser Thr Gly Tyr Gln Gly Ser  
 115 120 125  
 Ser Phe Val Leu Gly His Phe Ile Leu Leu Tyr Asn Ala Trp Cys Pro  
 130 135 140  
 Ala Asp Asp Val Tyr Leu Asp Ser Glu Glu Glu Arg Arg Glu Tyr Val  
 145 150 155 160  
 Leu Thr Gln Gln Gly Phe Ile Tyr Gln Gly Ser Val Lys Phe Ile Lys  
 165 170 175

Ser Val Pro Trp Asn Phe Gly Gln Phe Gln Asp Gly Ile Leu Asp Thr  
 180 185 190  
 Cys Leu Met Leu Leu Asp Met Asn Pro Lys Phe Leu Lys Asn Arg Ser  
 195 200 205  
 Arg Asp Cys Ser Arg Arg Ser Ser Pro Ile Tyr Val Gly Arg Val Val  
 210 215 220  
 Ser Asp Met Val Asn Cys Asn Asp Asp Gln Gly Val Leu Leu Gly Arg  
 225 230 235 240  
 Trp Asp Asn Asn Tyr Gly Asp Gly Ile Ser Pro Met Ala Trp Ile Gly  
 245 250 255  
 Ser Val Asp Ile Leu Arg Arg Trp Lys Glu His Gly Cys Gln Gln Val  
 260 265 270  
 Lys Tyr Gly Gln Cys Trp Val Phe Ala Ala Val Ala Cys Thr Val Leu  
 275 280 285  
 Arg Cys Leu Gly Ile Pro Thr Arg Val Val Thr Asn Tyr Asn Ser Ala  
 290 295 300  
 His Asp Gln Asn Ser Asn Leu Leu Ile Glu Tyr Phe Arg Asn Glu Phe  
 305 310 315 320  
 Gly Glu Leu Glu Thr Asn Lys Ser Glu Met Ile Trp Asn Phe His Cys  
 325 330 335  
 Trp Val Glu Ser Trp Met Thr Arg Pro Asp Leu Gln Pro Gly Tyr Glu  
 340 345 350  
 Gly Trp Gln Ala Leu Asp Pro Thr Pro Gln Glu Lys Ser Glu Gly Thr  
 355 360 365  
 Tyr Cys Cys Gly Pro Val Ser Val Arg Ala Ile Lys Glu Gly Asp Leu  
 370 375 380  
 Ser Thr Lys Tyr Asp Ala Pro Phe Val Phe Ala Glu Val Asn Ala Asp  
 385 390 395 400  
 Val Val Asp Trp Ile Arg Gln Asp Glu Gly Ser Val Leu Lys Trp Met

|   |     |     |     |
|---|-----|-----|-----|
|   | 405 | 410 | 415 |
| Asn Arg Ser Leu Ile Val Gly Gln Lys Ile Ser Thr Lys Ser Val Gly |     |     |     |
|   | 420 | 425 | 430 |
| Arg Asp Asp Arg Glu Asp Ile Thr His Thr Tyr Lys Tyr Pro Glu Gly |     |     |     |
|   | 435 | 440 | 445 |
| Ser Pro Glu Glu Arg Glu Val Phe Thr Lys Ala Asn His Leu Asn Lys |     |     |     |
|   | 450 | 455 | 460 |
| Leu Ala Glu Lys Glu Glu Thr Gly Val Ala Met Arg Ile Arg Val Gly |     |     |     |
|   | 465 | 470 | 475 |
| Gln Tyr Glu His Gly Asn Asp Phe Asp Val Phe Ala His Ile Gly Asn |     |     |     |
|   | 485 | 490 | 495 |
| Asp Thr Ser Glu Thr Arg Glu Cys Arg Leu Leu Leu Cys Ala Arg Thr |     |     |     |
|   | 500 | 505 | 510 |
| Val Ser Tyr Asn Gly Val Leu Gly Pro Glu Cys Gly Thr Glu Asp Ile |     |     |     |
|   | 515 | 520 | 525 |
| Asn Leu Thr Leu Asp Pro Tyr Ser Glu Asn Ser Ile Pro Leu Arg Ile |     |     |     |
|   | 530 | 535 | 540 |
| Leu Tyr Glu Lys Tyr Ser Asp Cys Leu Thr Glu Ser Asn Leu Ile Lys |     |     |     |
|   | 545 | 550 | 555 |
| Val Arg Gly Leu Leu Ile Glu Pro Ala Ala Asn Ser Tyr Leu Leu Ala |     |     |     |
|   | 565 | 570 | 575 |
| Glu Arg Asp Leu Tyr Val Glu Asn Pro Glu Ile Lys Ile Arg Val Leu |     |     |     |
|   | 580 | 585 | 590 |
| Gly Glu Pro Lys Gln Asn Arg Lys Leu Val Ala Glu Val Ser Leu Lys |     |     |     |
|   | 595 | 600 | 605 |
| Asn Pro Leu Ser Asp Pro Leu Tyr Asp Cys Ile Phe Thr Val Glu Gly |     |     |     |
|   | 610 | 615 | 620 |
| Ala Gly Leu Thr Lys Glu Gln Lys Ser Val Glu Val Ser Asp Pro Val |     |     |     |
|   | 625 | 630 | 635 |
|   |     |     | 640 |

Pro Ala Gly Asp Leu Val Lys Ala Arg Val Asp Leu Ser Pro Thr Asp

645

650

655

Ile Gly Leu His Lys Leu Val Val Asn Phe Gln Cys Asp Lys Leu Lys

660

665

670

Ser Val Lys Gly Tyr Arg Asn Val Ile Ile Gly Pro Ala

675

680

685

<210> 956

<211> 865

<212> DNA

<213> Mus musculus

<400> 956

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 gtgtcacttg aaggcaacaa ggggacittg agggacattt cattaaatat aattaccgat 180  
 aatttagaga ttactcattt acggtgcaat tgcttcigtg tgctaattgt gctttgcaaa 240  
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 gagctggatg ccactgtcca cgctgaggag tcttcattta gctccttccc tgggattcac 360  
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 cagctgctgg ttccctgttt tcttttctgc ccctttgcta tctgcagacc ttactccata 480  
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 gacggccaga gaaggacgt ggcacagatg cagcctgcag caaatctgga gctcttggat 600  
 gicctacaac gcagatgggt ggaaacgtgc ttgctanggc tcgactgtcc tgggtgctct 660  
 cgtgattcga gagagacat gtcttntctg tagatatccg tactgatcac agtggttigt 720  
 ttgtgtatac acgatgatat tgtacagcat ngntttctg agcgcggng gnggtggttg 780  
 ggtggggctc ggggtggctat catattctgc taatcggaag atacttctaa aacgcttgg 840  
 ggcatgagat cacggagcgt cgggg 865

&lt;210&gt; 957

&lt;211&gt; 2278

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (30).. (260)

&lt;400&gt; 957

agtccctgct atgtggatat ttgttagca atg act gat gtg gaa act acg tat 53

Met Thr Asp Val Glu Thr Thr Tyr

1

5

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10

15

20

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Asp Ile Leu Val Ser Ser Ala Ser Gly Asn Ser Asn Glu Leu Ala Leu

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30

35

40

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Lys Leu Ala Gly Leu Asp Ile Asn Lys Thr Glu Gly Glu Asp Asp Gly

45

50

55

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Gln Arg Ser Ser Thr Glu Gln Ser Gly Glu Ala Gln Gly Glu Ala Ala

60

65

70

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Lys Ser Glu Ser

75

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<211> 76

<212> PRT

<213> Mus musculus

<400> 958

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| Met | Thr | Asp | Val | Glu | Thr | Thr | Tyr | Ala | Asp | Phe | Ile | Ala | Ser | Gly | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Gly | Arg | Arg | Asn | Ala | Ile | His | Asp | Ile | Leu | Val | Ser | Ser | Ala | Ser |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Gly | Asn | Ser | Asn | Glu | Leu | Ala | Leu | Lys | Leu | Ala | Gly | Leu | Asp | Ile | Asn |
|     |     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |
| Lys | Thr | Glu | Gly | Glu | Asp | Asp | Gly | Gln | Arg | Ser | Ser | Thr | Glu | Gln | Ser |
|     |     |     |     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |     |
| Gly | Glu | Ala | Gln | Gly | Glu | Ala | Ala | Lys | Ser | Glu | Ser |     |     |     |     |
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<211> 149

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<213> Mus musculus

<400> 959

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149

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<211> 306

<212> DNA

<213> Mus musculus

<400> 960

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<211> 4886

<212> DNA

<213> Mus musculus

<400> 961

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a a c c a t c c a a a g g t t c t g g c t a t c g c t g t a t c c g t a t c a a c c a c a a g a t g g a c c c a t c a 2580  
t c a g c a a g g t g g c c a g c c a g a t t g g a c t c a g c c a g c c c a g c t g c a c c g g c t g c t g c c c a 2640  
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<211> 2552

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (98).. (1534)

<400> 962

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| Met Ala Thr Asp Ser Trp |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1                       |     |     |     |     |     |     |     |     |     | 5   |     |     |     |     |     |     |
| gcg                     | ctg | gcg | gtg | gac | gag | cag | gaa | gcc | gct | gtc | aag | tcg | atg | agc | agt | 163 |
| Ala                     | Leu | Ala | Val | Asp | Glu | Gln | Glu | Ala | Ala | Val | Lys | Ser | Met | Ser | Ser |     |
| 10                      |     |     |     |     | 15  |     |     |     |     | 20  |     |     |     |     |     |     |
| ttg                     | cag | atc | aag | gaa | gag | aaa | gca | aag | tca | gac | acc | aat | ggt | gtt | atc | 211 |
| Leu                     | Gln | Ile | Lys | Glu | Glu | Lys | Ala | Lys | Ser | Asp | Thr | Asn | Gly | Val | Ile |     |
| 25                      |     |     |     |     | 30  |     |     |     |     | 35  |     |     |     |     |     |     |
| aaa                     | acc | agc | acc | act | gca | gaa | aag | aca | gag | gaa | gag | gag | aaa | gag | gac | 259 |
| Lys                     | Thr | Ser | Thr | Thr | Ala | Glu | Lys | Thr | Glu | Glu | Glu | Glu | Lys | Glu | Asp |     |
| 40                      |     |     |     |     | 45  |     |     |     |     | 50  |     |     |     |     |     |     |
| aga                     | gct | gct | cag | tct | tta | ctc | aac | aag | ctg | atc | aga | agc | aat | ctt | gtg | 307 |
| Arg                     | Ala | Ala | Gln | Ser | Leu | Leu | Asn | Lys | Leu | Ile | Arg | Ser | Asn | Leu | Val |     |
| 55                      |     |     |     |     | 60  |     |     |     |     | 65  |     |     |     |     | 70  |     |
| gat                     | aac | acc | aac | caa | gtg | gaa | gtc | ctg | cag | agg | gac | cca | agc | tcc | ccg | 355 |
| Asp                     | Asn | Thr | Asn | Gln | Val | Glu | Val | Leu | Gln | Arg | Asp | Pro | Ser | Ser | Pro |     |
| 75                      |     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     |     |     |
| ctc                     | tac | tca | gtg | aag | tcc | ttc | gaa | gag | ctt | cgc | ctg | aaa | cct | cag | ctt | 403 |
| Leu                     | Tyr | Ser | Val | Lys | Ser | Phe | Glu | Glu | Leu | Arg | Leu | Lys | Pro | Gln | Leu |     |
| 90                      |     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     |     |     |
| ctc                     | caa | gga | gtc | tac | gcc | atg | ggc | ttc | aat | cga | ccg | tcc | aag | atc | cag | 451 |
| Leu                     | Gln | Gly | Val | Tyr | Ala | Met | Gly | Phe | Asn | Arg | Pro | Ser | Lys | Ile | Gln |     |
| 105                     |     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     |     |     |
| gag                     | aat | gct | ctg | ccc | atg | atg | ctt | gct | gaa | ccc | cca | cag | aac | ctg | att | 499 |
| Glu                     | Asn | Ala | Leu | Pro | Met | Met | Leu | Ala | Glu | Pro | Pro | Gln | Asn | Leu | Ile |     |
| 120                     |     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     |     |     |
| gca                     | cag | tcc | cag | tct | ggt | act | ggg | aaa | aca | gct | gcc | ttt | gtc | cta | gct | 547 |
| Ala                     | Gln | Ser | Gln | Ser | Gly | Thr | Gly | Lys | Thr | Ala | Ala | Phe | Val | Leu | Ala |     |
| 135                     |     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |     |

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ctg tcc cca aca tat gag ctg gca tta caa act gga aaa gtg att gag 643  
 Leu Ser Pro Thr Tyr Glu Leu Ala Leu Gln Thr Gly Lys Val Ile Glu  
 170 175 180

cag atg ggc aag ttt cac cca gaa ttg aag cta gct tat gct gtt cga 691  
 Gln Met Gly Lys Phe His Pro Glu Leu Lys Leu Ala Tyr Ala Val Arg  
 185 190 195

ggc aat aaa ttg gag aga ggt cag aag gtg agt gag cag att gtc att 739  
 Gly Asn Lys Leu Glu Arg Gly Gln Lys Val Ser Glu Gln Ile Val Ile  
 200 205 210

ggc acc ccc ggg acc gtc ttg gac tgg tgc tcc aag ctg aag ttc att 787  
 Gly Thr Pro Gly Thr Val Leu Asp Trp Cys Ser Lys Leu Lys Phe Ile  
 215 220 225 230

gac ccc aag aag atc aag gtg ttt gtt ctg gac gag gct gat gtg atg 835  
 Asp Pro Lys Lys Ile Lys Val Phe Val Leu Asp Glu Ala Asp Val Met  
 235 240 245

ata gcg act cag ggc cac caa gac cag agc atc cgc atc cag agg atc 883  
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 250 255 260

gtg ccc aga aac tgc cag atg ctg ctt ttc tcg gcc acc ttt gaa gac 931  
 Val Pro Arg Asn Cys Gln Met Leu Leu Phe Ser Ala Thr Phe Glu Asp  
 265 270 275

tcg gtg tgg aag ttt gcc cag aag gtg gtc cca gac ccc aac atc atc 979  
 Ser Val Trp Lys Phe Ala Gln Lys Val Val Pro Asp Pro Asn Ile Ile  
 280 285 290

aag cta aag cgt gag gag gag act ctg gac acc atc aaa cag tac tac 1027  
 Lys Leu Lys Arg Glu Glu Glu Thr Leu Asp Thr Ile Lys Gln Tyr Tyr

|   |     |     |     |      |
|---|-----|-----|-----|------|
| 295   | 300 | 305 | 310 |      |
| gtc ctc tgc aat aac aga gag gag aag ttc cag gcc ctg tgc aac ctg |     |     |     | 1075 |
| Val Leu Cys Asn Asn Arg Glu Glu Lys Phe Gln Ala Leu Cys Asn Leu |     |     |     |      |
|   | 315 | 320 | 325 |      |
| tat ggg gcc atc acc atc gcc caa gcc atg atc ttc tgc cat acc cgc |     |     |     | 1123 |
| Tyr Gly Ala Ile Thr Ile Ala Gln Ala Met Ile Phe Cys His Thr Arg |     |     |     |      |
|   | 330 | 335 | 340 |      |
| aaa aca gct agc tgg ctg gca gca gag ctc tca aaa gag ggc cac cag |     |     |     | 1171 |
| Lys Thr Ala Ser Trp Leu Ala Ala Glu Leu Ser Lys Glu Gly His Gln |     |     |     |      |
|   | 345 | 350 | 355 |      |
| gtg gcc ctg ctg agt gga gag atg atg gtg gag cag agg gct gcg gtg |     |     |     | 1219 |
| Val Ala Leu Leu Ser Gly Glu Met Met Val Glu Gln Arg Ala Ala Val |     |     |     |      |
|   | 360 | 365 | 370 |      |
| atc gag cgc ttc cga gaa ggc aaa gag aag gtt ctg gtg acc acc aac |     |     |     | 1267 |
| Ile Glu Arg Phe Arg Glu Gly Lys Glu Lys Val Leu Val Thr Thr Asn |     |     |     |      |
| 375   | 380 | 385 | 390 |      |
| gtg tgt gcc cgt ggt atc gat gtt gaa cag gtg tct gtc gtc atc aat |     |     |     | 1315 |
| Val Cys Ala Arg Gly Ile Asp Val Glu Gln Val Ser Val Val Ile Asn |     |     |     |      |
|   | 395 | 400 | 405 |      |
| ttt gac ctc cct gtg gac aag gat ggg aac cca gac aat gag acc tac |     |     |     | 1363 |
| Phe Asp Leu Pro Val Asp Lys Asp Gly Asn Pro Asp Asn Glu Thr Tyr |     |     |     |      |
|   | 410 | 415 | 420 |      |
| ctg cac cgc att ggg cgc act ggc cgc ttt ggc aag agg ggt ctg gcg |     |     |     | 1411 |
| Leu His Arg Ile Gly Arg Thr Gly Arg Phe Gly Lys Arg Gly Leu Ala |     |     |     |      |
|   | 425 | 430 | 435 |      |
| gtg aac atg gtg gac agc aag cac agc atg aat atc ctc aac agg atc |     |     |     | 1459 |
| Val Asn Met Val Asp Ser Lys His Ser Met Asn Ile Leu Asn Arg Ile |     |     |     |      |
|   | 440 | 445 | 450 |      |
| cag gag cat ttt aat aag aag ata gaa aga ctg gac aca gat gat ttg |     |     |     | 1507 |

Gln Glu His Phe Asn Lys Lys Ile Glu Arg Leu Asp Thr Asp Asp Leu

455

460

465

470

gac gag att gag aaa atc gcc aac tga ggcgctcgct tctccatggt 1554

Asp Glu Ile Glu Lys Ile Ala Asn

475

ggcgccaccc tcagcgctcc ctgccctggga gtctagtgtt ttcatggcat aggcctgacg 1614

ggccccctcag agaccacggg ctgagtagag actacctacc tcattcgga ttacgttttg 1674

acttgacaaa tttctgcaaa tagtaggggg aaatctaaga aaatttacia tttagaatat 1734

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gaggatctcc atgaattaca gaccagcctg ttttacttaa tgagctctag gacagccaga 1854

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<210> 963

<211> 478

<212> PRT

<213> Mus musculus

<400> 963



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 35 40 45  
 Glu Glu Glu Lys Glu Asp Arg Ala Ala Gln Ser Leu Leu Asn Lys Leu  
 50 55 60  
 Ile Arg Ser Asn Leu Val Asp Asn Thr Asn Gln Val Glu Val Leu Gln  
 65 70 75 80  
 Arg Asp Pro Ser Ser Pro Leu Tyr Ser Val Lys Ser Phe Glu Glu Leu  
 85 90 95  
 Arg Leu Lys Pro Gln Leu Leu Gln Gly Val Tyr Ala Met Gly Phe Asn  
 100 105 110  
 Arg Pro Ser Lys Ile Gln Glu Asn Ala Leu Pro Met Met Leu Ala Glu  
 115 120 125  
 Pro Pro Gln Asn Leu Ile Ala Gln Ser Gln Ser Gly Thr Gly Lys Thr  
 130 135 140  
 Ala Ala Phe Val Leu Ala Met Leu Ser Arg Val Glu Pro Ala Asp Arg  
 145 150 155 160  
 Tyr Pro Gln Cys Leu Cys Leu Ser Pro Thr Tyr Glu Leu Ala Leu Gln  
 165 170 175  
 Thr Gly Lys Val Ile Glu Gln Met Gly Lys Phe His Pro Glu Leu Lys  
 180 185 190  
 Leu Ala Tyr Ala Val Arg Gly Asn Lys Leu Glu Arg Gly Gln Lys Val  
 195 200 205  
 Ser Glu Gln Ile Val Ile Gly Thr Pro Gly Thr Val Leu Asp Trp Cys  
 210 215 220  
 Ser Lys Leu Lys Phe Ile Asp Pro Lys Lys Ile Lys Val Phe Val Leu

|   |     |     |     |
|---|-----|-----|-----|
| 225   | 230 | 235 | 240 |
| Asp Glu Ala Asp Val Met Ile Ala Thr Gln Gly His Gln Asp Gln Ser |     |     |     |
|   | 245 | 250 | 255 |
| Ile Arg Ile Gln Arg Ile Val Pro Arg Asn Cys Gln Met Leu Leu Phe |     |     |     |
|   | 260 | 265 | 270 |
| Ser Ala Thr Phe Glu Asp Ser Val Trp Lys Phe Ala Gln Lys Val Val |     |     |     |
|   | 275 | 280 | 285 |
| Pro Asp Pro Asn Ile Ile Lys Leu Lys Arg Glu Glu Glu Thr Leu Asp |     |     |     |
|   | 290 | 295 | 300 |
| Thr Ile Lys Gln Tyr Tyr Val Leu Cys Asn Asn Arg Glu Glu Lys Phe |     |     |     |
| 305   | 310 | 315 | 320 |
| Gln Ala Leu Cys Asn Leu Tyr Gly Ala Ile Thr Ile Ala Gln Ala Met |     |     |     |
|   | 325 | 330 | 335 |
| Ile Phe Cys His Thr Arg Lys Thr Ala Ser Trp Leu Ala Ala Glu Leu |     |     |     |
|   | 340 | 345 | 350 |
| Ser Lys Glu Gly His Gln Val Ala Leu Leu Ser Gly Glu Met Met Val |     |     |     |
|   | 355 | 360 | 365 |
| Glu Gln Arg Ala Ala Val Ile Glu Arg Phe Arg Glu Gly Lys Glu Lys |     |     |     |
|   | 370 | 375 | 380 |
| Val Leu Val Thr Thr Asn Val Cys Ala Arg Gly Ile Asp Val Glu Gln |     |     |     |
| 385   | 390 | 395 | 400 |
| Val Ser Val Val Ile Asn Phe Asp Leu Pro Val Asp Lys Asp Gly Asn |     |     |     |
|   | 405 | 410 | 415 |
| Pro Asp Asn Glu Thr Tyr Leu His Arg Ile Gly Arg Thr Gly Arg Phe |     |     |     |
|   | 420 | 425 | 430 |
| Gly Lys Arg Gly Leu Ala Val Asn Met Val Asp Ser Lys His Ser Met |     |     |     |
|   | 435 | 440 | 445 |
| Asn Ile Leu Asn Arg Ile Gln Glu His Phe Asn Lys Lys Ile Glu Arg |     |     |     |
| 450   | 455 | 460 |     |

Leu Asp Thr Asp Asp Leu Asp Glu Ile Glu Lys Ile Ala Asn

465

470

475

<210> 964

<211> 3170

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (54).. (1139)

<400> 964

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tct aag caa caa cca act cag ttt ata aat cca gaa act cct ggc tat      104
Ser Lys Gln Gln Pro Thr Gln Phe Ile Asn Pro Glu Thr Pro Gly Tyr
           5              10              15
gtt gga ttt gca aat ctt ccc aat caa gtt cac cga aaa tca gtg aag      152
Val Gly Phe Ala Asn Leu Pro Asn Gln Val His Arg Lys Ser Val Lys
           20              25              30
aag ggg ttc gag ttc act ctg atg gtg gtt ggt gaa tct ggt cta gga      200
Lys Gly Phe Glu Phe Thr Leu Met Val Val Gly Glu Ser Gly Leu Gly
           35              40              45
aaa tca act ctc ata aac agc tta ttc ctg act gat ctc tac cca gaa      248
Lys Ser Thr Leu Ile Asn Ser Leu Phe Leu Thr Asp Leu Tyr Pro Glu
           50              55              60              65
aga att att cct gga gct gca gag aaa att gaa aga act gtc cag ata      296

```

|   |     |
|---|-----|
| Arg Ile Ile Pro Gly Ala Ala Glu Lys Ile Glu Arg Thr Val Gln Ile |     |
| 70  | 75  |
| 80  |     |
| gag gct tcg act gtt gag att gaa gag cgg ggt gtg aag ctg cgg ctt | 344 |
| Glu Ala Ser Thr Val Glu Ile Glu Glu Arg Gly Val Lys Leu Arg Leu |     |
| 85  | 90  |
| 95  |     |
| aca gta gtg gac act ccc ggc tac ggg gat gcc atc aac tgc agg gat | 392 |
| Thr Val Val Asp Thr Pro Gly Tyr Gly Asp Ala Ile Asn Cys Arg Asp |     |
| 100   | 105 |
| 110   |     |
| tgt ttc aag aca att atc tcc tac att gat gag cag ttt gaa cgc tac | 440 |
| Cys Phe Lys Thr Ile Ile Ser Tyr Ile Asp Glu Gln Phe Glu Arg Tyr |     |
| 115   | 120 |
| 125   |     |
| cta cat gat gag agt gga ctg aac agg cgt cac atc att gat aac agg | 488 |
| Leu His Asp Glu Ser Gly Leu Asn Arg Arg His Ile Ile Asp Asn Arg |     |
| 130   | 135 |
| 140   | 145 |
| gta cat tgt tgc ttc tac ttc att tca cct ttt gga cat gga ctg aag | 536 |
| Val His Cys Cys Phe Tyr Phe Ile Ser Pro Phe Gly His Gly Leu Lys |     |
| 150   | 155 |
| 160   |     |
| ccc tta gat gtt gca ttt atg aaa gcg ata cac aat aag gtg aat att | 584 |
| Pro Leu Asp Val Ala Phe Met Lys Ala Ile His Asn Lys Val Asn Ile |     |
| 165   | 170 |
| 175   |     |
| gtg cct gtc att gcg aaa gct gac act ctc act ctg aag gag cgt gag | 632 |
| Val Pro Val Ile Ala Lys Ala Asp Thr Leu Thr Leu Lys Glu Arg Glu |     |
| 180   | 185 |
| 190   |     |
| cgg ctt aag aaa agg att ttg gat gaa att gaa gag cat agc att aaa | 680 |
| Arg Leu Lys Lys Arg Ile Leu Asp Glu Ile Glu Glu His Ser Ile Lys |     |
| 195   | 200 |
| 205   |     |
| atc tat cac tta cct gat gca gag tca gat gaa gat gaa gac ttt aag | 728 |
| Ile Tyr His Leu Pro Asp Ala Glu Ser Asp Glu Asp Glu Asp Phe Lys |     |
| 210   | 215 |
| 220   | 225 |

gag cag act aga ctc ctc aag gcc agt atc cca ttc tct gtg gtt ggc 776  
 Glu Gln Thr Arg Leu Leu Lys Ala Ser Ile Pro Phe Ser Val Val Gly  
 230 235 240  
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 Ser Asn Gln Leu Ile Glu Ala Lys Gly Lys Lys Val Arg Gly Arg Leu  
 245 250 255  
 tac cca tgg ggt gtt gta gag gtg gag aac cca gaa cac aat gac ttt 872  
 Tyr Pro Trp Gly Val Val Glu Val Glu Asn Pro Glu His Asn Asp Phe  
 260 265 270  
 ctg aag ctg aga acg atg ctc atc acc cac atg cag gac cta cag gaa 920  
 Leu Lys Leu Arg Thr Met Leu Ile Thr His Met Gln Asp Leu Gln Glu  
 275 280 285  
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 290 295 300 305  
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 325 330 335  
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<210> 965

<211> 361

<212> PRT

<213> Mus musculus

<400> 965

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 Lys Lys Gly Phe Glu Phe Thr Leu Met Val Val Gly Glu Ser Gly Leu  
 35 40 45  
 Gly Lys Ser Thr Leu Ile Asn Ser Leu Phe Leu Thr Asp Leu Tyr Pro  
 50 55 60  
 Glu Arg Ile Ile Pro Gly Ala Ala Glu Lys Ile Glu Arg Thr Val Gln  
 65 70 75 80  
 Ile Glu Ala Ser Thr Val Glu Ile Glu Glu Arg Gly Val Lys Leu Arg  
 85 90 95  
 Leu Thr Val Val Asp Thr Pro Gly Tyr Gly Asp Ala Ile Asn Cys Arg  
 100 105 110  
 Asp Cys Phe Lys Thr Ile Ile Ser Tyr Ile Asp Glu Gln Phe Glu Arg  
 115 120 125  
 Tyr Leu His Asp Glu Ser Gly Leu Asn Arg Arg His Ile Ile Asp Asn  
 130 135 140  
 Arg Val His Cys Cys Phe Tyr Phe Ile Ser Pro Phe Gly His Gly Leu

|   |     |     |     |
|---|-----|-----|-----|
| 145   | 150 | 155 | 160 |
| Lys Pro Leu Asp Val Ala Phe Met Lys Ala Ile His Asn Lys Val Asn |     |     |     |
|   | 165 | 170 | 175 |
| Ile Val Pro Val Ile Ala Lys Ala Asp Thr Leu Thr Leu Lys Glu Arg |     |     |     |
|   | 180 | 185 | 190 |
| Glu Arg Leu Lys Lys Arg Ile Leu Asp Glu Ile Glu Glu His Ser Ile |     |     |     |
|   | 195 | 200 | 205 |
| Lys Ile Tyr His Leu Pro Asp Ala Glu Ser Asp Glu Asp Glu Asp Phe |     |     |     |
|   | 210 | 215 | 220 |
| Lys Glu Gln Thr Arg Leu Leu Lys Ala Ser Ile Pro Phe Ser Val Val |     |     |     |
|   | 225 | 230 | 235 |
| Gly Ser Asn Gln Leu Ile Glu Ala Lys Gly Lys Lys Val Arg Gly Arg |     |     | 240 |
|   | 245 | 250 | 255 |
| Leu Tyr Pro Trp Gly Val Val Glu Val Glu Asn Pro Glu His Asn Asp |     |     |     |
|   | 260 | 265 | 270 |
| Phe Leu Lys Leu Arg Thr Met Leu Ile Thr His Met Gln Asp Leu Gln |     |     |     |
|   | 275 | 280 | 285 |
| Glu Val Thr Gln Asp Leu His Tyr Glu Asn Phe Arg Ser Glu Arg Leu |     |     |     |
|   | 290 | 295 | 300 |
| Lys Arg Gly Gly Arg Lys Val Glu Asn Glu Asp Met Asn Lys Asp Gln |     |     |     |
|   | 305 | 310 | 315 |
| Ile Leu Leu Glu Lys Glu Ala Glu Leu Arg Arg Met Gln Glu Met Ile |     |     | 320 |
|   | 325 | 330 | 335 |
| Ala Arg Met Gln Ala Gln Met Gln Met Gln Met Gln Gly Gly Asp Ser |     |     |     |
|   | 340 | 345 | 350 |
| Asp Ser Gly Ala Leu Gly Gln His Val                             |     |     |     |
|   | 355 | 360 |     |

&lt;210&gt; 966



<211> 720

<212> DNA

<213> *Mus musculus*

<400> 966

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cttggaatgt ttagatttga ttgaagaatg aagagaagta ctattanta atatcaatag 660  
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<210> 967

<211> 986

<212> DNA

<213> *Mus musculus*

<400> 967

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 aatttgcctga acttgggtcaa atatgttaga agctctgtgc agaggattga ataggctcgtg 840  
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<210> 968

<211> 604

<212> DNA

<213> Mus musculus

<400> 968

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agct

604

&lt;210&gt; 969

&lt;211&gt; 696

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (85).. (681)

&lt;400&gt; 969

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ctcgcggcgt tgtaagcatc aata atg tct ttc atc ttt gag tgg atc tac    111
      Met Ser Phe Ile Phe Glu Trp Ile Tyr
                1                 5
aat ggc ttc agc agt gtg ctc cag ttc cta gga ctc tac aag aaa tct    159
Asn Gly Phe Ser Ser Val Leu Gln Phe Leu Gly Leu Tyr Lys Lys Ser
    10                15                20                25
gga aaa ctt gta ttc tta gga ttg gac aat gcg ggc aaa acc act ctt    207
Gly Lys Leu Val Phe Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr Leu
                30                35                40
ctt cag atg ctg aaa gat gac aga cta ggc cag cac gta cca aca ctc    255
Leu Gln Met Leu Lys Asp Asp Arg Leu Gly Gln His Val Pro Thr Leu
                45                50                55
cat ccc act tca gaa gaa ctg aca att gct gga atg act ttc acc act    303
His Pro Thr Ser Glu Glu Leu Thr Ile Ala Gly Met Thr Phe Thr Thr
                60                65                70
ttt gat ctc ggt ggg cat gag caa gca cgt cgc gtt tgg aaa aat tat    351

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Phe Asp Leu Gly Gly His Glu Gln Ala Arg Arg Val Trp Lys Asn Tyr  
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 Leu Pro Ala Ile Asn Gly Ile Val Phe Leu Val Asp Cys Ala Asp His  
       90                          95                          100                          105  
 tct cgt ctc atg gaa tcc aaa gtt gag ctt aat gct tta atg act gat 447  
 Ser Arg Leu Met Glu Ser Lys Val Glu Leu Asn Ala Leu Met Thr Asp  
                           110                          115                          120  
 gaa aca ata tcc aac gtg cca att ctt atc ttg gga aac aaa att gac 495  
 Glu Thr Ile Ser Asn Val Pro Ile Leu Ile Leu Gly Asn Lys Ile Asp  
                           125                          130                          135  
 agg aca gat gca atc agt gaa gaa aaa ctc cgt gaa ata aaa ggg ctg 543  
 Arg Thr Asp Ala Ile Ser Glu Glu Lys Leu Arg Glu Ile Lys Gly Leu  
                           140                          145                          150  
 tac ggg cag acc aca gga aag ggg aat gtg act ctg aag gag ctg aac 591  
 Tyr Gly Gln Thr Thr Gly Lys Gly Asn Val Thr Leu Lys Glu Leu Asn  
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 gcc cgc ccc atg gaa gta ttc atg tgc agt gtg ctc aag agg caa ggc 639  
 Ala Arg Pro Met Glu Val Phe Met Cys Ser Val Leu Lys Arg Gln Gly  
       170                          175                          180                          185  
 tac ggc gag ggt ttc cgc tgg ctt tcc cag tat att gac tga 681  
 Tyr Gly Glu Gly Phe Arg Trp Leu Ser Gln Tyr Ile Asp  
                           190                          195  
 tgtttggaca gtgaa 696

&lt;210&gt; 970

&lt;211&gt; 198

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 970

Met Ser Phe Ile Phe Glu Trp Ile Tyr Asn Gly Phe Ser Ser Val Leu

1 5 10 15

Gln Phe Leu Gly Leu Tyr Lys Lys Ser Gly Lys Leu Val Phe Leu Gly

20 25 30

Leu Asp Asn Ala Gly Lys Thr Thr Leu Leu Gln Met Leu Lys Asp Asp

35 40 45

Arg Leu Gly Gln His Val Pro Thr Leu His Pro Thr Ser Glu Glu Leu

50 55 60

Thr Ile Ala Gly Met Thr Phe Thr Thr Phe Asp Leu Gly Gly His Glu

65 70 75 80

Gln Ala Arg Arg Val Trp Lys Asn Tyr Leu Pro Ala Ile Asn Gly Ile

85 90 95

Val Phe Leu Val Asp Cys Ala Asp His Ser Arg Leu Met Glu Ser Lys

100 105 110

Val Glu Leu Asn Ala Leu Met Thr Asp Glu Thr Ile Ser Asn Val Pro

115 120 125

Ile Leu Ile Leu Gly Asn Lys Ile Asp Arg Thr Asp Ala Ile Ser Glu

130 135 140

Glu Lys Leu Arg Glu Ile Lys Gly Leu Tyr Gly Gln Thr Thr Gly Lys

145 150 155 160

Gly Asn Val Thr Leu Lys Glu Leu Asn Ala Arg Pro Met Glu Val Phe

165 170 175

Met Cys Ser Val Leu Lys Arg Gln Gly Tyr Gly Glu Gly Phe Arg Trp

180 185 190

Leu Ser Gln Tyr Ile Asp

195

&lt;210&gt; 971

- &lt;211&gt; 227

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 971

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tacaggggtt tcgigtgcat cgtcaccgaa cgtggcctcg caatgaggcg aaaactgacg 120
taaacgtaca ctcagctagt cgatctgcat gcccagatg ctgagtggtg ttacgaatc 180
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&lt;210&gt; 972

&lt;211&gt; 793

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (51).. (404)

&lt;400&gt; 972

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                                                    Met Ser
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Ala Gly Ser Ser Cys Ser Gln Thr Pro Ser Arg Ala Ile Pro Thr Arg
          5              10              15
cgc gta gcc ctc ggc gat ggc gtg cag ctc ccg ccc ggg gac tac agc      152
Arg Val Ala Leu Gly Asp Gly Val Gln Leu Pro Pro Gly Asp Tyr Ser

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| 20   | 25  | 30  |    |
| acc act ccg ggc ggg acg ctc ttc agc acc acc ccg gga gga acc agg    | 200 |     |    |
| Thr Thr Pro Gly Gly Thr Leu Phe Ser Thr Thr Pro Gly Gly Thr Arg    |     |     |    |
| 35   | 40  | 45  | 50 |
| att atc tat gac cgg aaa ttt ctg atg gag tgt cgg aac tca cct gtg    | 248 |     |    |
| Ile Ile Tyr Asp Arg Lys Phe Leu Met Glu Cys Arg Asn Ser Pro Val    |     |     |    |
| 55   | 60  | 65  |    |
| gcc aaa aca ccc cca aag gac ctg cca gcc att cct ggg gtc act agc    | 296 |     |    |
| Ala Lys Thr Pro Pro Lys Asp Leu Pro Ala Ile Pro Gly Val Thr Ser    |     |     |    |
| 70   | 75  | 80  |    |
| cct acc agc gat gag cct ccc atg caa gcc agc cag agc caa ctg ccc    | 344 |     |    |
| Pro Thr Ser Asp Glu Pro Pro Met Gln Ala Ser Gln Ser Gln Leu Pro    |     |     |    |
| 85   | 90  | 95  |    |
| agc agc ccg gaa gat aag cgg gca ggc ggt gaa gag tca caa ttt gag    | 392 |     |    |
| Ser Ser Pro Glu Asp Lys Arg Ala Gly Gly Glu Glu Ser Gln Phe Glu    |     |     |    |
| 100  | 105 | 110 |    |
| atg gac att taa gggaccagcc gtaggacgca atgatgttc tatgtccccc         | 444 |     |    |
| Met Asp Ile  |     |     |    |
| 115  |     |     |    |
| aaggcccttg ggaggagagc tgcacagcat tcaggcctca taccaggcag aactgggtg   | 504 |     |    |
| tgggtcggcc acccagtcct gctcctcact cagggtgccca gctctgccit gaattttgtg | 564 |     |    |
| aacaccagca catacctcct tgtgcctctg tctataccga gctgctactg caggggaaig  | 624 |     |    |
| actctcactc acaccctccc tgcattggagc tccagcgagt ggactcagag gagtctatca | 684 |     |    |
| gaatgatctg gtaatcctag cccagcctc cggagcacac ccatctttcc ttaggctggg   | 744 |     |    |
| ttacctggga aagccacact tttacttctt tccctgacag gaaataaaa              | 793 |     |    |

&lt;210&gt; 973

&lt;211&gt; 117

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 973

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 20 25 30  
 Tyr Ser Thr Thr Pro Gly Gly Thr Leu Phe Ser Thr Thr Pro Gly Gly  
 35 40 45  
 Thr Arg Ile Ile Tyr Asp Arg Lys Phe Leu Met Glu Cys Arg Asn Ser  
 50 55 60  
 Pro Val Ala Lys Thr Pro Pro Lys Asp Leu Pro Ala Ile Pro Gly Val  
 65 70 75 80  
 Thr Ser Pro Thr Ser Asp Glu Pro Pro Met Gln Ala Ser Gln Ser Gln  
 85 90 95  
 Leu Pro Ser Ser Pro Glu Asp Lys Arg Ala Gly Gly Glu Glu Ser Gln  
 100 105 110  
 Phe Glu Met Asp Ile  
 115

&lt;210&gt; 974

&lt;211&gt; 1272

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 974

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<210> 975

<211> 3967

<212> DNA

<213> Mus musculus

<400> 975

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<210> 976

<211> 3257

<212> DNA

<213> Mus musculus

<400> 976

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<210> 977

<211> 782

<212> DNA

<213> *Mus musculus*

<220>

<221> CDS

<222> (75).. (581)

<400> 977

ctgacgtgtt ccagaaggaa gtgcatcttc atacaccacc acacctgaaa gcagaacctg 60  
 gtccacgtgc agtc atg gca gct gag tcc ctg cct ttc acc ttg gag acg 110  
 Met Ala Ala Glu Ser Leu Pro Phe Thr Leu Glu Thr  
 1 5 10  
 gtg tcc agc tgg gag ctg gaa gcc tgg tat gag gat ctg cag gag gtc 158  
 Val Ser Ser Trp Glu Leu Glu Ala Trp Tyr Glu Asp Leu Gln Glu Val  
 15 20 25  
 ctg tcc tca gat gaa att ggg ggc acc tat atc tca tcc cca gga aac 206

Leu Ser Ser Asp Glu Ile Gly Gly Thr Tyr Ile Ser Ser Pro Gly Asn  
 30 35 40  
 gaa gag gaa gaa tca aaa acc ttc act act ctt gac cct gcg tcc cta 254  
 Glu Glu Glu Glu Ser Lys Thr Phe Thr Thr Leu Asp Pro Ala Ser Leu  
 45 50 55 60  
 gct tgg ctg aca gag gag cca ggg cca aca gag gtc aca cgc aca tcc 302  
 Ala Trp Leu Thr Glu Glu Pro Gly Pro Thr Glu Val Thr Arg Thr Ser  
 65 70 75  
 caa agc cct cgc tct cca gat tcc agt cag agt tct atg gcc cag gag 350  
 Gln Ser Pro Arg Ser Pro Asp Ser Ser Gln Ser Ser Met Ala Gln Glu  
 80 85 90  
 gaa gag gag gaa gag caa gga aga act agg aaa cgg aaa cag agt ggt 398  
 Glu Glu Glu Glu Glu Gln Gly Arg Thr Arg Lys Arg Lys Gln Ser Gly  
 95 100 105  
 cag tgc cca gcc cgg cct ggg aag caa cgc atg aag gag aag gag cag 446  
 Gln Cys Pro Ala Arg Pro Gly Lys Gln Arg Met Lys Glu Lys Glu Gln  
 110 115 120  
 gag aac gag cgg aaa gtg gca cag cta gct gaa gag aac gag cgg ctc 494  
 Glu Asn Glu Arg Lys Val Ala Gln Leu Ala Glu Glu Asn Glu Arg Leu  
 125 130 135 140  
 aag cag gaa atc gag cgc ctg acc agg gag gtg gag acc aca cgg cgg 542  
 Lys Gln Glu Ile Glu Arg Leu Thr Arg Glu Val Glu Thr Thr Arg Arg  
 145 150 155  
 gct ctg atc gac cgc atg gtc agc ctg cac caa gca tga acagtgggca 591  
 Ala Leu Ile Asp Arg Met Val Ser Leu His Gln Ala  
 160 165  
 tcacctcctg tctgtctctc cggaagtgtg cccagcacca tcgcgccagc gccaaagcatg 651  
 tgaccctgca ctgcactgca catgctgagg aggggactga gggtagacca ggagagggct 711  
 cggcttgac atagacggta cattgtttat tactgtccat gtccagtaaa gtgactttgt 771

gtcaaaaaaa a

782

&lt;210&gt; 978

&lt;211&gt; 168

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 978

Met Ala Ala Glu Ser Leu Pro Phe Thr Leu Glu Thr Val Ser Ser Trp  
 1 5 10 15  
 Glu Leu Glu Ala Trp Tyr Glu Asp Leu Gln Glu Val Leu Ser Ser Asp  
 20 25 30  
 Glu Ile Gly Gly Thr Tyr Ile Ser Ser Pro Gly Asn Glu Glu Glu Glu  
 35 40 45  
 Ser Lys Thr Phe Thr Thr Leu Asp Pro Ala Ser Leu Ala Trp Leu Thr  
 50 55 60  
 Glu Glu Pro Gly Pro Thr Glu Val Thr Arg Thr Ser Gln Ser Pro Arg  
 65 70 75 80  
 Ser Pro Asp Ser Ser Gln Ser Ser Met Ala Gln Glu Glu Glu Glu Glu  
 85 90 95  
 Glu Gln Gly Arg Thr Arg Lys Arg Lys Gln Ser Gly Gln Cys Pro Ala  
 100 105 110  
 Arg Pro Gly Lys Gln Arg Met Lys Glu Lys Glu Gln Glu Asn Glu Arg  
 115 120 125  
 Lys Val Ala Gln Leu Ala Glu Glu Asn Glu Arg Leu Lys Gln Glu Ile  
 130 135 140  
 Glu Arg Leu Thr Arg Glu Val Glu Thr Thr Arg Arg Ala Leu Ile Asp  
 145 150 155 160  
 Arg Met Val Ser Leu His Gln Ala



165

&lt;210&gt; 979

&lt;211&gt; 2322

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (53).. (1600)

&lt;400&gt; 979

gctacagatc tgtgaacgtg tttggcagcg gcaactaaac tcagaaaaca tc atg gca 58

Met Ala

1

gag cag gtg gcc ctg agc cgg acc cag gtg tgt ggg atc ctg agg gaa 106

Glu Gln Val Ala Leu Ser Arg Thr Gln Val Cys Gly Ile Leu Arg Glu

5

10

15

gag ttg tac cag ggt gat gcc ttc cac caa gct gat aca cac ata ttt 154

Glu Leu Tyr Gln Gly Asp Ala Phe His Gln Ala Asp Thr His Ile Phe

20

25

30

atc atc atg ggt gca tcg ggt gac ctg gcc aag aag aag atc tat cct 202

Ile Ile Met Gly Ala Ser Gly Asp Leu Ala Lys Lys Lys Ile Tyr Pro

35

40

45

50

acc atc tgg tgg ctg ttc cgg gat ggc ctt cta cct gaa gat acc ttc 250

Thr Ile Trp Trp Leu Phe Arg Asp Gly Leu Leu Pro Glu Asp Thr Phe

55

60

65

att gtg ggc tat gcc cgc tca cga ctc aca gtg gac gac atc cga aag 298

Ile Val Gly Tyr Ala Arg Ser Arg Leu Thr Val Asp Asp Ile Arg Lys

|   |     |     |     |
|---|-----|-----|-----|
| 70  | 75  | 80  |     |
| cag agt gag ccc ttc ttt aaa gcc act cca gaa gaa aga cct aag ctg |     |     | 346 |
| Gln Ser Glu Pro Phe Phe Lys Ala Thr Pro Glu Glu Arg Pro Lys Leu |     |     |     |
| 85  | 90  | 95  |     |
| gag gag ttc ttt gcc cgt aat tcc tat gta gct ggc cag tat gat gat |     |     | 394 |
| Glu Glu Phe Phe Ala Arg Asn Ser Tyr Val Ala Gly Gln Tyr Asp Asp |     |     |     |
| 100   | 105 | 110 |     |
| gca gcc tcc tat aag cac ctc aac agc cac atg aat gcc ctg cac cag |     |     | 442 |
| Ala Ala Ser Tyr Lys His Leu Asn Ser His Met Asn Ala Leu His Gln |     |     |     |
| 115   | 120 | 125 | 130 |
| ggg atg cag gcc aac cgt cta ttc tac ctg gcc ttg ccc ccc aca gtc |     |     | 490 |
| Gly Met Gln Ala Asn Arg Leu Phe Tyr Leu Ala Leu Pro Pro Thr Val |     |     |     |
| 135   | 140 | 145 |     |
| tat gaa gca gtc acc aag aac att caa gag acc tgc atg agt cag aca |     |     | 538 |
| Tyr Glu Ala Val Thr Lys Asn Ile Gln Glu Thr Cys Met Ser Gln Thr |     |     |     |
| 150   | 155 | 160 |     |
| ggc tgg aac cgc atc atc gtg gag aag ccc ttc ggg aga gac cta cag |     |     | 586 |
| Gly Trp Asn Arg Ile Ile Val Glu Lys Pro Phe Gly Arg Asp Leu Gln |     |     |     |
| 165   | 170 | 175 |     |
| agc tcc aat caa ctg tcg aac cac atc tcc tct ctt ttc cgt gag gac |     |     | 634 |
| Ser Ser Asn Gln Leu Ser Asn His Ile Ser Ser Leu Phe Arg Glu Asp |     |     |     |
| 180   | 185 | 190 |     |
| cag atc tac cgc att gac cac tac ctg ggc aaa gag atg gtc cag aat |     |     | 682 |
| Gln Ile Tyr Arg Ile Asp His Tyr Leu Gly Lys Glu Met Val Gln Asn |     |     |     |
| 195   | 200 | 205 | 210 |
| ctc atg gtg ctg agg ttt gcc aac agg atc ttt gga ccc atc tgg aat |     |     | 730 |
| Leu Met Val Leu Arg Phe Ala Asn Arg Ile Phe Gly Pro Ile Trp Asn |     |     |     |
| 215   | 220 | 225 |     |
| cga gac aac att gct tgt gtg atc ctc aca ttt aaa gag ccc ttt ggt |     |     | 778 |

|   |      |
|---|------|
| Arg Asp Asn Ile Ala Cys Val Ile Leu Thr Phe Lys Glu Pro Phe Gly |      |
| 230   | 235  |
| act gag ggt cgt ggg ggc tat ttt gat gaa ttt ggg atc atc agg gat | 826  |
| Thr Glu Gly Arg Gly Gly Tyr Phe Asp Glu Phe Gly Ile Ile Arg Asp |      |
| 245   | 250  |
| ggt atg cag aac cac ctc ctg cag atg ttg tgt ctg gtg gcc atg gaa | 874  |
| Val Met Gln Asn His Leu Leu Gln Met Leu Cys Leu Val Ala Met Glu |      |
| 260   | 265  |
| aag cct gcc act aca ggt tca gat gat gtc cgt gat gag aag gtc aaa | 922  |
| Lys Pro Ala Thr Thr Gly Ser Asp Asp Val Arg Asp Glu Lys Val Lys |      |
| 275   | 280  |
| gtg ttg aag tgt atc tca gag gtg gaa act gac aac gtg gtc ctt ggc | 970  |
| Val Leu Lys Cys Ile Ser Glu Val Glu Thr Asp Asn Val Val Leu Gly |      |
| 295   | 300  |
| caa tat gtg ggg aac ccc aat gga gaa gga gaa gct gcc aat gga tac | 1018 |
| Gln Tyr Val Gly Asn Pro Asn Gly Glu Gly Glu Ala Ala Asn Gly Tyr |      |
| 310   | 315  |
| tta gat gac ccc aca gta ccc cat ggg tcc acc act gcc act ttt gca | 1066 |
| Leu Asp Asp Pro Thr Val Pro His Gly Ser Thr Thr Ala Thr Phe Ala |      |
| 325   | 330  |
| gca gct gtc ctc tat gtg gag aat gaa cgg tgg gac ggg gta ccc ttc | 1114 |
| Ala Ala Val Leu Tyr Val Glu Asn Glu Arg Trp Asp Gly Val Pro Phe |      |
| 340   | 345  |
| atc ctg cgc tgt ggc aaa gcc ctg aat gaa cgc aaa gct gaa gtg aga | 1162 |
| Ile Leu Arg Cys Gly Lys Ala Leu Asn Glu Arg Lys Ala Glu Val Arg |      |
| 355   | 360  |
| ctg cag ttc cga gac gtg gca ggt gac atc ttc cac caa cag tgc aag | 1210 |
| Leu Gln Phe Arg Asp Val Ala Gly Asp Ile Phe His Gln Gln Cys Lys |      |
| 375   | 380  |
|   | 385  |

cgt aat gag ctg gtc atc cgt gtg cag ccc aat gag gca gta tac acc 1258  
 Arg Asn Glu Leu Val Ile Arg Val Gln Pro Asn Glu Ala Val Tyr Thr  
 390 395 400  
 aag atg atg acc aag aag cct ggc atg ttc ttt aac cct gag gag tcg 1306  
 Lys Met Met Thr Lys Lys Pro Gly Met Phe Phe Asn Pro Glu Glu Ser  
 405 410 415  
 gag ctg gat cta act tat ggc aac aga tac aag aat gtg aag ctc cct 1354  
 Glu Leu Asp Leu Thr Tyr Gly Asn Arg Tyr Lys Asn Val Lys Leu Pro  
 420 425 430  
 gat gcc tat gaa cgc ctc atc ctg gat gtc ttc tgt ggg agc cag atg 1402  
 Asp Ala Tyr Glu Arg Leu Ile Leu Asp Val Phe Cys Gly Ser Gln Met  
 435 440 445 450  
 cac ttt gtc cgg agt gat gaa ctc agg gaa gcc tgg cgt atc ttc aca 1450  
 His Phe Val Arg Ser Asp Glu Leu Arg Glu Ala Trp Arg Ile Phe Thr  
 455 460 465  
 cca ctg ctg cac aag att gat cga gaa aag ccc cag ccc atc ccc tat 1498  
 Pro Leu Leu His Lys Ile Asp Arg Glu Lys Pro Gln Pro Ile Pro Tyr  
 470 475 480  
 gta tat ggc agc cgc ggc ccc aca gag gca gat gag ctg atg aag aga 1546  
 Val Tyr Gly Ser Arg Gly Pro Thr Glu Ala Asp Glu Leu Met Lys Arg  
 485 490 495  
 gtg ggc ttc cag tac gag ggt acc tac aag tgg gtg aac cct cac aag 1594  
 Val Gly Phe Gln Tyr Glu Gly Thr Tyr Lys Trp Val Asn Pro His Lys  
 500 505 510  
 ctc tga gccctggaag ttacaccatc tatactctgc ctctcttggc caccctttct 1650  
 Leu  
 515  
 gcattctccc ttttcacat ctaaccctat attaggacta ttgaccccat attggaagga 1710  
 ctttgggacc ataggcctta gatacacatt ctagttcctg ggcttggacc gccattttgt 1770

cctatgctgc tgccactgcc accaccagta aaccagcta cattcctcaa ataccaggca 1830  
 tttaaaactc attgtagggt ttcagggccca ccactggccc tatctgagcc acccatcttt 1890  
 ccacaagacc tgaatcacct cccttccagc cgctgcagaa agaatgccta tcagictgcc 1950  
 cctggactcc ttaaggagtt aggaacaatg gggaggagcc ttaggcctca aagggacaat 2010  
 gaccaaacca gacttcccag aggctatggg caagctcctc aaaacttgaa ggaagtggic 2070  
 aaggacacct atgtgagagg acctgcccac gccacacta gcctcagtgc tactagacat 2130  
 tcctcctcac cagatggaag agacctcatg ctgcctagca atatittggg ggctctagat 2190  
 gtcccctgac caattccata ctccatggic aacctcatcc cacctatggg cagccicctt 2250  
 accaaaggaa ggcaagcaca gcagctagaa ttttctatc ccaacctgc cattaaatcc 2310  
 tcaaaacagt ta 2322

<210> 980

<211> 515

<212> PRT

<213> Mus musculus

<400> 980

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Glu | Gln | Val | Ala | Leu | Ser | Arg | Thr | Gln | Val | Cys | Gly | Ile | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Glu | Glu | Leu | Tyr | Gln | Gly | Asp | Ala | Phe | His | Gln | Ala | Asp | Thr | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Ile | Phe | Ile | Ile | Met | Gly | Ala | Ser | Gly | Asp | Leu | Ala | Lys | Lys | Lys | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     |     | 45  |     |
| Tyr | Pro | Thr | Ile | Trp | Trp | Leu | Phe | Arg | Asp | Gly | Leu | Leu | Pro | Glu | Asp |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Phe | Ile | Val | Gly | Tyr | Ala | Arg | Ser | Arg | Leu | Thr | Val | Asp | Asp | Ile |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |
| Arg | Lys | Gln | Ser | Glu | Pro | Phe | Phe | Lys | Ala | Thr | Pro | Glu | Glu | Arg | Pro |
|     |     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |

Lys Leu Glu Glu Phe Phe Ala Arg Asn Ser Tyr Val Ala Gly Gln Tyr  
                   100                                  105                                  110  
 Asp Asp Ala Ala Ser Tyr Lys His Leu Asn Ser His Met Asn Ala Leu  
                   115                                  120                                  125  
 His Gln Gly Met Gln Ala Asn Arg Leu Phe Tyr Leu Ala Leu Pro Pro  
                   130                                  135                                  140  
 Thr Val Tyr Glu Ala Val Thr Lys Asn Ile Gln Glu Thr Cys Met Ser  
                   145                                  150                                  155                                  160  
 Gln Thr Gly Trp Asn Arg Ile Ile Val Glu Lys Pro Phe Gly Arg Asp  
                   165                                  170                                  175  
 Leu Gln Ser Ser Asn Gln Leu Ser Asn His Ile Ser Ser Leu Phe Arg  
                   180                                  185                                  190  
 Glu Asp Gln Ile Tyr Arg Ile Asp His Tyr Leu Gly Lys Glu Met Val  
                   195                                  200                                  205  
 Gln Asn Leu Met Val Leu Arg Phe Ala Asn Arg Ile Phe Gly Pro Ile  
                   210                                  215                                  220  
 Trp Asn Arg Asp Asn Ile Ala Cys Val Ile Leu Thr Phe Lys Glu Pro  
                   225                                  230                                  235                                  240  
 Phe Gly Thr Glu Gly Arg Gly Gly Tyr Phe Asp Glu Phe Gly Ile Ile  
                   245                                  250                                  255  
 Arg Asp Val Met Gln Asn His Leu Leu Gln Met Leu Cys Leu Val Ala  
                   260                                  265                                  270  
 Met Glu Lys Pro Ala Thr Thr Gly Ser Asp Asp Val Arg Asp Glu Lys  
                   275                                  280                                  285  
 Val Lys Val Leu Lys Cys Ile Ser Glu Val Glu Thr Asp Asn Val Val  
                   290                                  295                                  300  
 Leu Gly Gln Tyr Val Gly Asn Pro Asn Gly Glu Gly Glu Ala Ala Asn  
                   305                                  310                                  315                                  320  
 Gly Tyr Leu Asp Asp Pro Thr Val Pro His Gly Ser Thr Thr Ala Thr

325 330 335  
 Phe Ala Ala Ala Val Leu Tyr Val Glu Asn Glu Arg Trp Asp Gly Val  
 340 345 350  
 Pro Phe Ile Leu Arg Cys Gly Lys Ala Leu Asn Glu Arg Lys Ala Glu  
 355 360 365  
 Val Arg Leu Gln Phe Arg Asp Val Ala Gly Asp Ile Phe His Gln Gln  
 370 375 380  
 Cys Lys Arg Asn Glu Leu Val Ile Arg Val Gln Pro Asn Glu Ala Val  
 385 390 395 400  
 Tyr Thr Lys Met Met Thr Lys Lys Pro Gly Met Phe Phe Asn Pro Glu  
 405 410 415  
 Glu Ser Glu Leu Asp Leu Thr Tyr Gly Asn Arg Tyr Lys Asn Val Lys  
 420 425 430  
 Leu Pro Asp Ala Tyr Glu Arg Leu Ile Leu Asp Val Phe Cys Gly Ser  
 435 440 445  
 Gln Met His Phe Val Arg Ser Asp Glu Leu Arg Glu Ala Trp Arg Ile  
 450 455 460  
 Phe Thr Pro Leu Leu His Lys Ile Asp Arg Glu Lys Pro Gln Pro Ile  
 465 470 475 480  
 Pro Tyr Val Tyr Gly Ser Arg Gly Pro Thr Glu Ala Asp Glu Leu Met  
 485 490 495  
 Lys Arg Val Gly Phe Gln Tyr Glu Gly Thr Tyr Lys Trp Val Asn Pro  
 500 505 510  
 His Lys Leu  
 515

&lt;210&gt; 981

&lt;211&gt; 212

&lt;212&gt; DNA

<213> Mus musculus

<400> 981

aaaccagcgc catttcaagg gacatcgaca cagctgccaa gttcattgga gctggggctg 60  
cgacagtiga ggtgactggc tctgggggca gggattggga ctgttttggg gagtctcatc 120  
attggctatg cagggaaccc ttctctgaag caagaactct tctcctaggc gattctgggc 180  
tttgctgctt cataggccat ggggcgcctt gt 212

<210> 982

<211> 1234

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (92).. (1072)

<400> 982

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gtgtagccta gctggctga gcctctctgc c atg cgg ctc cct gtg tgt ctg 112  
Met Arg Leu Pro Val Cys Leu  
1 5  
atc ttg cta gga ccg ctt ata gcc caa gga aca gag gaa gac tgt cct 160  
Ile Leu Leu Gly Pro Leu Ile Ala Gln Gly Thr Glu Glu Asp Cys Pro  
10 15 20  
cac aaa aag gcc gtt act ctc ctg cca tcc ttc acg atg aca cct aca 208  
His Lys Lys Ala Val Thr Leu Leu Pro Ser Phe Thr Met Thr Pro Thr  
25 30 35  
gcc aca gaa agc aca gcc agc cct acg acc agc cac agg ccc acc acc 256



|  |     |
|--|-----|
| Ala Thr Glu Ser Thr Ala Ser Pro Thr Thr Ser His Arg Pro Thr Thr  |     |
| 40                                      45                                      50                                      55     |     |
| acc agt cac gga aat gtc aca gtt cac acc agc tcc gga ccc aca act  | 304 |
| Thr Ser His Gly Asn Val Thr Val His Thr Ser Ser Gly Pro Thr Thr  |     |
| 60                                      65                                      70   |     |
| gtc act cat aac cct gcc acc acc acc agt cat ggg aat gcc aca att  | 352 |
| Val Thr His Asn Pro Ala Thr Thr Thr Ser His Gly Asn Ala Thr Ile  |     |
| 75                                      80                                      85   |     |
| tct cat gcc aca gtt tct ccc acc aca aat ggc act gct act agt cca  | 400 |
| Ser His Ala Thr Val Ser Pro Thr Thr Asn Gly Thr Ala Thr Ser Pro  |     |
| 90                                      95                                      100  |     |
| aga tcc tcc act gtt ggc cct cac cct gga cca cct cca ccc tcg cct  | 448 |
| Arg Ser Ser Thr Val Gly Pro His Pro Gly Pro Pro Pro Pro Ser Pro  |     |
| 105                                      110                                      115  |     |
| agt cca agg tcc aag ggg gct ctt ggg aac tac acg tgg gcc aac ggc  | 496 |
| Ser Pro Arg Ser Lys Gly Ala Leu Gly Asn Tyr Thr Trp Ala Asn Gly  |     |
| 120                                      125                                      130                                      135 |     |
| tcc cag cct tgt gtt cag ctc caa gcc caa att caa atc cga atc cta  | 544 |
| Ser Gln Pro Cys Val Gln Leu Gln Ala Gln Ile Gln Ile Arg Ile Leu  |     |
| 140                                      145                                      150  |     |
| tac cca att cag ggt gga aga aag gct tgg ggc ata tct gtt ttg aat  | 592 |
| Tyr Pro Ile Gln Gly Gly Arg Lys Ala Trp Gly Ile Ser Val Leu Asn  |     |
| 155                                      160                                      165  |     |
| ccc aac aaa acc aag gtc cag gga ggt tgt gac ggt acc cat ccc cac  | 640 |
| Pro Asn Lys Thr Lys Val Gln Gly Gly Cys Asp Gly Thr His Pro His  |     |
| 170                                      175                                      180  |     |
| ctg tct ctc tca ttt cct tat gga cag ctt acc ttt gga ttc aaa cag  | 688 |
| Leu Ser Leu Ser Phe Pro Tyr Gly Gln Leu Thr Phe Gly Phe Lys Gln  |     |
| 185                                      190                                      195  |     |

gac cta cat cag agc ccg agt aca gtc tac ctg gac tac atg gcg gtg 736  
 Asp Leu His Gln Ser Pro Ser Thr Val Tyr Leu Asp Tyr Met Ala Val  
 200 205 210 215  
 gaa tac aat gtg tcc ttc cca cag gca gca cag tgg aca ttc atg gcg 784  
 Glu Tyr Asn Val Ser Phe Pro Gln Ala Ala Gln Trp Thr Phe Met Ala  
 220 225 230  
 cag aat tca tct ctt cga gag ctc caa gct ccc ttg ggc caa agc ttc 832  
 Gln Asn Ser Ser Leu Arg Glu Leu Gln Ala Pro Leu Gly Gln Ser Phe  
 235 240 245  
 tgc tgt gga aat gca agc ata gtt ctt tct cca gct gtt cac ctt gac 880  
 Cys Cys Gly Asn Ala Ser Ile Val Leu Ser Pro Ala Val His Leu Asp  
 250 255 260  
 ctg ctc tct cta agg cta cag gct gct cag ctg cct gac aag gga cac 928  
 Leu Leu Ser Leu Arg Leu Gln Ala Ala Gln Leu Pro Asp Lys Gly His  
 265 270 275  
 ttc ggg cca tgt ttc tct tgc aac cgt gac cag tcc ctc ttg ctg cct 976  
 Phe Gly Pro Cys Phe Ser Cys Asn Arg Asp Gln Ser Leu Leu Leu Pro  
 280 285 290 295  
 ctc atc att ggc ctg gtc ctc ctc ggc ctc ctc acc ctg gtg ctc atc 1024  
 Leu Ile Ile Gly Leu Val Leu Leu Gly Leu Leu Thr Leu Val Leu Ile  
 300 305 310  
 gcc ttc tgc atc acc cgc aga cga caa tca acc tac cag ccc ctc tga 1072  
 Ala Phe Cys Ile Thr Arg Arg Arg Gln Ser Thr Tyr Gln Pro Leu  
 315 320 325  
 gcattgtccc cagtcacatg tgtaagccac caaggagcgc ctcattcttt caccatgccca 1132  
 ctgactcaac agttaccttc cttctctgtc tttaggaaca caatgaagag attttataat 1192  
 aggggtgggg aatcaataaa catgaatggt acctactaaa aa 1234

&lt;210&gt; 983

&lt;211&gt; 326

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 983

Met Arg Leu Pro Val Cys Leu Ile Leu Leu Gly Pro Leu Ile Ala Gln

1 5 10 15

Gly Thr Glu Glu Asp Cys Pro His Lys Lys Ala Val Thr Leu Leu Pro

20 25 30

Ser Phe Thr Met Thr Pro Thr Ala Thr Glu Ser Thr Ala Ser Pro Thr

35 40 45

Thr Ser His Arg Pro Thr Thr Thr Ser His Gly Asn Val Thr Val His

50 55 60

Thr Ser Ser Gly Pro Thr Thr Val Thr His Asn Pro Ala Thr Thr Thr

65 70 75 80

Ser His Gly Asn Ala Thr Ile Ser His Ala Thr Val Ser Pro Thr Thr

85 90 95

Asn Gly Thr Ala Thr Ser Pro Arg Ser Ser Thr Val Gly Pro His Pro

100 105 110

Gly Pro Pro Pro Pro Ser Pro Ser Pro Arg Ser Lys Gly Ala Leu Gly

115 120 125

Asn Tyr Thr Trp Ala Asn Gly Ser Gln Pro Cys Val Gln Leu Gln Ala

130 135 140

Gln Ile Gln Ile Arg Ile Leu Tyr Pro Ile Gln Gly Gly Arg Lys Ala

145 150 155 160

Trp Gly Ile Ser Val Leu Asn Pro Asn Lys Thr Lys Val Gln Gly Gly

165 170 175

Cys Asp Gly Thr His Pro His Leu Ser Leu Ser Phe Pro Tyr Gly Gln

180 185 190

Leu Thr Phe Gly Phe Lys Gln Asp Leu His Gln Ser Pro Ser Thr Val  
           195                          200                          205  
 Tyr Leu Asp Tyr Met Ala Val Glu Tyr Asn Val Ser Phe Pro Gln Ala  
           210                          215                          220  
 Ala Gln Trp Thr Phe Met Ala Gln Asn Ser Ser Leu Arg Glu Leu Gln  
   225                          230                          235                          240  
 Ala Pro Leu Gly Gln Ser Phe Cys Cys Gly Asn Ala Ser Ile Val Leu  
                           245                          250                          255  
 Ser Pro Ala Val His Leu Asp Leu Leu Ser Leu Arg Leu Gln Ala Ala  
           260                          265                          270  
 Gln Leu Pro Asp Lys Gly His Phe Gly Pro Cys Phe Ser Cys Asn Arg  
           275                          280                          285  
 Asp Gln Ser Leu Leu Leu Pro Leu Ile Ile Gly Leu Val Leu Leu Gly  
           290                          295                          300  
 Leu Leu Thr Leu Val Leu Ile Ala Phe Cys Ile Thr Arg Arg Arg Gln  
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 Ser Thr Tyr Gln Pro Leu  
                           325

<210> 984

<211> 4072

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (5).. (2671)

<400> 984

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 1 5 10 15  
 ggg tgt gca gcc cat aag gac aca cag acc gag gct ggc agc ccg ttt 97  
 Gly Cys Ala Ala His Lys Asp Thr Gln Thr Glu Ala Gly Ser Pro Phe  
 20 25 30  
 gtg ggg aac cca ggg aat atc aca ggt gcc aga gga ctc acg ggg aca 145  
 Val Gly Asn Pro Gly Asn Ile Thr Gly Ala Arg Gly Leu Thr Gly Thr  
 35 40 45  
 ctt cgg tgt gag ctc cag gtt cag ggg gaa ccc cct gag gtg gtg tgg 193  
 Leu Arg Cys Glu Leu Gln Val Gln Gly Glu Pro Pro Glu Val Val Trp  
 50 55 60  
 ctt cga gat gga cag atc cta gaa ctg gct gat aac acc cag acc cag 241  
 Leu Arg Asp Gly Gln Ile Leu Glu Leu Ala Asp Asn Thr Gln Thr Gln  
 65 70 75  
 gtg cct ctg ggc gaa gac tgg caa gat gaa tgg aaa gtt gtc agt cag 289  
 Val Pro Leu Gly Glu Asp Trp Gln Asp Glu Trp Lys Val Val Ser Gln  
 80 85 90 95  
 ctc aga atc tca gcc ctg caa ctt tca gat gca ggg gag tac cag tgt 337  
 Leu Arg Ile Ser Ala Leu Gln Leu Ser Asp Ala Gly Glu Tyr Gln Cys  
 100 105 110  
 atg gtg cat cta gaa gga cgg acc ttt gtg tct cag ccg ggc ttt gta 385  
 Met Val His Leu Glu Gly Arg Thr Phe Val Ser Gln Pro Gly Phe Val  
 115 120 125  
 ggg ctg gaa ggt ctc ccg tac ttc ctg gag gag cct gag gac aaa gct 433  
 Gly Leu Glu Gly Leu Pro Tyr Phe Leu Glu Glu Pro Glu Asp Lys Ala  
 130 135 140  
 gtg cct gcc aac acc cct ttc aac cta agc tgc cag gcc cag gga ccc 481  
 Val Pro Ala Asn Thr Pro Phe Asn Leu Ser Cys Gln Ala Gln Gly Pro

|   |     |     |     |
|---|-----|-----|-----|
| 145   | 150 | 155 |     |
| ccg gaa ccc gtg acc cta ctc tgg ctt caa gat gct gtc ccc ctg gcc |     |     | 529 |
| Pro Glu Pro Val Thr Leu Leu Trp Leu Gln Asp Ala Val Pro Leu Ala |     |     |     |
| 160   | 165 | 170 | 175 |
| cca gtc aca gga cac agc tcc cag cac agt ctg caa act cca ggc ctg |     |     | 577 |
| Pro Val Thr Gly His Ser Ser Gln His Ser Leu Gln Thr Pro Gly Leu |     |     |     |
|   | 180 | 185 | 190 |
| aac aag aca tct tct ttc tca tgt gaa gcc cac aat gcc aag gga gtc |     |     | 625 |
| Asn Lys Thr Ser Ser Phe Ser Cys Glu Ala His Asn Ala Lys Gly Val |     |     |     |
|   | 195 | 200 | 205 |
| acc acc tcc cgc aca gcc acc atc aca gtg ctc ccc cag agg cct cac |     |     | 673 |
| Thr Thr Ser Arg Thr Ala Thr Ile Thr Val Leu Pro Gln Arg Pro His |     |     |     |
|   | 210 | 215 | 220 |
| cat ctc cac gtg gtt tcc aga caa cct acg gag cta gag gta gct tgg |     |     | 721 |
| His Leu His Val Val Ser Arg Gln Pro Thr Glu Leu Glu Val Ala Trp |     |     |     |
|   | 225 | 230 | 235 |
| acc cct ggc ctg agt ggc atc tac ccg ctc acc cac tgc aac ctg cag |     |     | 769 |
| Thr Pro Gly Leu Ser Gly Ile Tyr Pro Leu Thr His Cys Asn Leu Gln |     |     |     |
|   | 240 | 245 | 250 |
| gcc gtg ctg tca gac gat ggg gtg ggt atc tgg ctg gga aag tca gat |     |     | 817 |
| Ala Val Leu Ser Asp Asp Gly Val Gly Ile Trp Leu Gly Lys Ser Asp |     |     |     |
|   | 260 | 265 | 270 |
| cct cct gaa gac ccc ctc acc ttg caa gta tca gtg ccc ccc cac cag |     |     | 865 |
| Pro Pro Glu Asp Pro Leu Thr Leu Gln Val Ser Val Pro Pro His Gln |     |     |     |
|   | 275 | 280 | 285 |
| ctt cgg ctg gaa aag ctc ctt cct cac acc ccg tat cac atc cgg ata |     |     | 913 |
| Leu Arg Leu Glu Lys Leu Leu Pro His Thr Pro Tyr His Ile Arg Ile |     |     |     |
|   | 290 | 295 | 300 |
| tcc tgc agc agc agc cag ggc ccc tca cct tgg acc cac tgg ctt cct |     |     | 961 |

|   |      |
|---|------|
| Ser Cys Ser Ser Ser Gln Gly Pro Ser Pro Trp Thr His Trp Leu Pro |      |
| 305   | 310  |
| gtg gag acc aca gag gga gtg ccc ttg ggt ccc cct gag aac gtt agc | 1009 |
| Val Glu Thr Thr Glu Gly Val Pro Leu Gly Pro Pro Glu Asn Val Ser |      |
| 320   | 325  |
| gcc atg cgg aat ggg agc cag gtc ctc gtg cgt tgg cag gag cca agg | 1057 |
| Ala Met Arg Asn Gly Ser Gln Val Leu Val Arg Trp Gln Glu Pro Arg |      |
|   | 340  |
| gtg ccc ctg caa ggc acc ctg tta ggg tac cgg ctg gca tat cga ggc | 1105 |
| Val Pro Leu Gln Gly Thr Leu Leu Gly Tyr Arg Leu Ala Tyr Arg Gly |      |
|   | 355  |
| cag gac acc ccc gag gta ctt atg gat ata ggg cta act cga gag gtg | 1153 |
| Gln Asp Thr Pro Glu Val Leu Met Asp Ile Gly Leu Thr Arg Glu Val |      |
|   | 370  |
| acc ttg gaa ctg cgg ggg gac agg cct gtg gct aac ctg act gtg tct | 1201 |
| Thr Leu Glu Leu Arg Gly Asp Arg Pro Val Ala Asn Leu Thr Val Ser |      |
|   | 385  |
| gtg aca gcc tat acc tcg gct ggg gat ggg ccc tgg agc ctt cct gtg | 1249 |
| Val Thr Ala Tyr Thr Ser Ala Gly Asp Gly Pro Trp Ser Leu Pro Val |      |
|   | 400  |
| ccc cta gag ccc tgg cgc cca ggg caa gga cag cca ctc cac cat ctg | 1297 |
| Pro Leu Glu Pro Trp Arg Pro Gly Gln Gly Gln Pro Leu His His Leu |      |
|   | 420  |
| gtg agt gaa ccc cca cct cgc gcc ttc tcg tgg cct tgg tgg tat gta | 1345 |
| Val Ser Glu Pro Pro Pro Arg Ala Phe Ser Trp Pro Trp Trp Tyr Val |      |
|   | 435  |
| ctg ctg gga gca ctt gtg gct gcc gcc tgc gtc ctc atc ttg gcc ctg | 1393 |
| Leu Leu Gly Ala Leu Val Ala Ala Ala Cys Val Leu Ile Leu Ala Leu |      |
|   | 450  |
|   | 460  |

|   |      |
|---|------|
| ttc ctt gtc cat cgg agg aag aag gag act cga tat ggg gag gtg ttt | 1441 |
| Phe Leu Val His Arg Arg Lys Lys Glu Thr Arg Tyr Gly Glu Val Phe |      |
| 465 470 475   |      |
| gag cca acc gig gaa aga ggt gaa ctg gta gtc agg tac cgt gtc cga | 1489 |
| Glu Pro Thr Val Glu Arg Gly Glu Leu Val Val Arg Tyr Arg Val Arg |      |
| 480 485 490 495   |      |
| aag tcc tac agc cgg cgg acc act gaa gcc acc ttg aac agt ctg ggc | 1537 |
| Lys Ser Tyr Ser Arg Arg Thr Thr Glu Ala Thr Leu Asn Ser Leu Gly |      |
| 500 505 510   |      |
| atc agt gaa gag ctg aag gag aaa cta cga gac gtc atg gta gat cgg | 1585 |
| Ile Ser Glu Glu Leu Lys Glu Lys Leu Arg Asp Val Met Val Asp Arg |      |
| 515 520 525   |      |
| cat aag gtg gcc ttg ggg aag acc ctg gga gaa gga gaa ttt ggc gct | 1633 |
| His Lys Val Ala Leu Gly Lys Thr Leu Gly Glu Gly Glu Phe Gly Ala |      |
| 530 535 540   |      |
| gtg atg gaa ggt cag ctc aat cag gat gac tcc atc ctc aag gtc gct | 1681 |
| Val Met Glu Gly Gln Leu Asn Gln Asp Asp Ser Ile Leu Lys Val Ala |      |
| 545 550 555   |      |
| gtg aag acc atg aaa att gcc atc tgc aca aga tca gag ctg gag gat | 1729 |
| Val Lys Thr Met Lys Ile Ala Ile Cys Thr Arg Ser Glu Leu Glu Asp |      |
| 560 565 570 575   |      |
| ttc ctg agt gaa gct gtc tgc atg aag gaa ttt gac cac ccc aac gtc | 1777 |
| Phe Leu Ser Glu Ala Val Cys Met Lys Glu Phe Asp His Pro Asn Val |      |
| 580 585 590   |      |
| atg agg ctc att ggc gtc tgt ttt cag ggc tct gac aga gag ggt ttc | 1825 |
| Met Arg Leu Ile Gly Val Cys Phe Gln Gly Ser Asp Arg Glu Gly Phe |      |
| 595 600 605   |      |
| cca gaa cct gtg gtc atc ttg cct ttc atg aaa cac gga gac cta cac | 1873 |
| Pro Glu Pro Val Val Ile Leu Pro Phe Met Lys His Gly Asp Leu His |      |



|   |     |     |      |
|---|-----|-----|------|
| 610   | 615 | 620 |      |
| agt ttc ctc ctg tac tcc cgg ctc ggg gac cag cca gtg ttc ctg ccc |     |     | 1921 |
| Ser Phe Leu Leu Tyr Ser Arg Leu Gly Asp Gln Pro Val Phe Leu Pro |     |     |      |
| 625   | 630 | 635 |      |
| act cag atg cta gtg aag ttc atg gcc gac att gcc agt ggt atg gag |     |     | 1969 |
| Thr Gln Met Leu Val Lys Phe Met Ala Asp Ile Ala Ser Gly Met Glu |     |     |      |
| 640   | 645 | 650 | 655  |
| tac ctg agt acc aag aga ttc ata cat cgg gac ctg gct gcc agg aac |     |     | 2017 |
| Tyr Leu Ser Thr Lys Arg Phe Ile His Arg Asp Leu Ala Ala Arg Asn |     |     |      |
| 660   | 665 | 670 |      |
| tgc atg ctg aat gag aac atg tcc gtg tgt gtg gca gac ttc ggg ctc |     |     | 2065 |
| Cys Met Leu Asn Glu Asn Met Ser Val Cys Val Ala Asp Phe Gly Leu |     |     |      |
| 675   | 680 | 685 |      |
| tcc aag aag atc tac aac ggg gat tac tac cgc caa ggg cgc att gcc |     |     | 2113 |
| Ser Lys Lys Ile Tyr Asn Gly Asp Tyr Tyr Arg Gln Gly Arg Ile Ala |     |     |      |
| 690   | 695 | 700 |      |
| aag atg cca gtc aag tgg att gct att gag agt ctg gca gat cgg gtc |     |     | 2161 |
| Lys Met Pro Val Lys Trp Ile Ala Ile Glu Ser Leu Ala Asp Arg Val |     |     |      |
| 705   | 710 | 715 |      |
| tac acc agc aag agc gat gtg tgg tcc ttc ggt gtg aca atg tgg gag |     |     | 2209 |
| Tyr Thr Ser Lys Ser Asp Val Trp Ser Phe Gly Val Thr Met Trp Glu |     |     |      |
| 720   | 725 | 730 | 735  |
| atc gcc acc cga ggc caa act ccc tat cca ggg gtg gag aac agt gag |     |     | 2257 |
| Ile Ala Thr Arg Gly Gln Thr Pro Tyr Pro Gly Val Glu Asn Ser Glu |     |     |      |
| 740   | 745 | 750 |      |
| att tac gac tac ctg cgt caa gga aat cgg ctg aaa cag cct gtg gac |     |     | 2305 |
| Ile Tyr Asp Tyr Leu Arg Gln Gly Asn Arg Leu Lys Gln Pro Val Asp |     |     |      |
| 755   | 760 | 765 |      |
| ttt ctg gac ggc ctg tat tcc ctg atg tct cgg tgc tgg gaa ctg aac |     |     | 2353 |

Phe Leu Asp Gly Leu Tyr Ser Leu Met Ser Arg Cys Trp Glu Leu Asn  
 770 775 780  
 cct cga gac cgg cca agt ttt gcg gag ctc cgg gaa gac ttg gag aac 2401  
 Pro Arg Asp Arg Pro Ser Phe Ala Glu Leu Arg Glu Asp Leu Glu Asn  
 785 790 795  
 aca ctg aag gct ctg ccc cct gct cag gag cca gat gaa atc ctc tat 2449  
 Thr Leu Lys Ala Leu Pro Pro Ala Gln Glu Pro Asp Glu Ile Leu Tyr  
 800 805 810 815  
 gtc aac atg gat gag ggc gga agc cac ctt gaa ccc cgt ggg gct gct 2497  
 Val Asn Met Asp Glu Gly Gly Ser His Leu Glu Pro Arg Gly Ala Ala  
 820 825 830  
 gga gga gct gac ccc cca acc caa cct gat cct aag gat tcc tgt agc 2545  
 Gly Gly Ala Asp Pro Pro Thr Gln Pro Asp Pro Lys Asp Ser Cys Ser  
 835 840 845  
 tgt ctc act gca gct gac gtc cac tca gct gga cgc tat gtc ctt tgt 2593  
 Cys Leu Thr Ala Ala Asp Val His Ser Ala Gly Arg Tyr Val Leu Cys  
 850 855 860  
 cct tct aca gcc cca gga ccc act ctg tct gct gac aga ggc tgc cca 2641  
 Pro Ser Thr Ala Pro Gly Pro Thr Leu Ser Ala Asp Arg Gly Cys Pro  
 865 870 875  
 gca cct cca ggg cag gag gac gga gcc tga gacaatcttc cacctgggac 2691  
 Ala Pro Pro Gly Gln Glu Asp Gly Ala  
 880 885  
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 aagcctgtgc gatgcactgg gaatgcctgc tttcttccaa gggatgggtc atctcccctc 3951  
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 a 4072

<210> 985

<211> 888

<212> PRT

<213> Mus musculus

<400> 985

Met Gly Arg Val Pro Leu Ala Trp Trp Leu Ala Leu Cys Cys Trp Gly

1

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15

Cys Ala Ala His Lys Asp Thr Gln Thr Glu Ala Gly Ser Pro Phe Val

20

25

30

Gly Asn Pro Gly Asn Ile Thr Gly Ala Arg Gly Leu Thr Gly Thr Leu  
 35 40 45  
 Arg Cys Glu Leu Gln Val Gln Gly Glu Pro Pro Glu Val Val Trp Leu  
 50 55 60  
 Arg Asp Gly Gln Ile Leu Glu Leu Ala Asp Asn Thr Gln Thr Gln Val  
 65 70 75 80  
 Pro Leu Gly Glu Asp Trp Gln Asp Glu Trp Lys Val Val Ser Gln Leu  
 85 90 95  
 Arg Ile Ser Ala Leu Gln Leu Ser Asp Ala Gly Glu Tyr Gln Cys Met  
 100 105 110  
 Val His Leu Glu Gly Arg Thr Phe Val Ser Gln Pro Gly Phe Val Gly  
 115 120 125  
 Leu Glu Gly Leu Pro Tyr Phe Leu Glu Glu Pro Glu Asp Lys Ala Val  
 130 135 140  
 Pro Ala Asn Thr Pro Phe Asn Leu Ser Cys Gln Ala Gln Gly Pro Pro  
 145 150 155 160  
 Glu Pro Val Thr Leu Leu Trp Leu Gln Asp Ala Val Pro Leu Ala Pro  
 165 170 175  
 Val Thr Gly His Ser Ser Gln His Ser Leu Gln Thr Pro Gly Leu Asn  
 180 185 190  
 Lys Thr Ser Ser Phe Ser Cys Glu Ala His Asn Ala Lys Gly Val Thr  
 195 200 205  
 Thr Ser Arg Thr Ala Thr Ile Thr Val Leu Pro Gln Arg Pro His His  
 210 215 220  
 Leu His Val Val Ser Arg Gln Pro Thr Glu Leu Glu Val Ala Trp Thr  
 225 230 235 240  
 Pro Gly Leu Ser Gly Ile Tyr Pro Leu Thr His Cys Asn Leu Gln Ala  
 245 250 255  
 Val Leu Ser Asp Asp Gly Val Gly Ile Trp Leu Gly Lys Ser Asp Pro

|   |     |     |
|---|-----|-----|
| 260   | 265 | 270 |
| Pro Glu Asp Pro Leu Thr Leu Gln Val Ser Val Pro Pro His Gln Leu |     |     |
| 275   | 280 | 285 |
| Arg Leu Glu Lys Leu Leu Pro His Thr Pro Tyr His Ile Arg Ile Ser |     |     |
| 290   | 295 | 300 |
| Cys Ser Ser Ser Gln Gly Pro Ser Pro Trp Thr His Trp Leu Pro Val |     |     |
| 305   | 310 | 315 |
| Glu Thr Thr Glu Gly Val Pro Leu Gly Pro Pro Glu Asn Val Ser Ala |     |     |
| 325   | 330 | 335 |
| Met Arg Asn Gly Ser Gln Val Leu Val Arg Trp Gln Glu Pro Arg Val |     |     |
| 340   | 345 | 350 |
| Pro Leu Gln Gly Thr Leu Leu Gly Tyr Arg Leu Ala Tyr Arg Gly Gln |     |     |
| 355   | 360 | 365 |
| Asp Thr Pro Glu Val Leu Met Asp Ile Gly Leu Thr Arg Glu Val Thr |     |     |
| 370   | 375 | 380 |
| Leu Glu Leu Arg Gly Asp Arg Pro Val Ala Asn Leu Thr Val Ser Val |     |     |
| 385   | 390 | 395 |
| Thr Ala Tyr Thr Ser Ala Gly Asp Gly Pro Trp Ser Leu Pro Val Pro |     |     |
| 405   | 410 | 415 |
| Leu Glu Pro Trp Arg Pro Gly Gln Gly Gln Pro Leu His His Leu Val |     |     |
| 420   | 425 | 430 |
| Ser Glu Pro Pro Pro Arg Ala Phe Ser Trp Pro Trp Trp Tyr Val Leu |     |     |
| 435   | 440 | 445 |
| Leu Gly Ala Leu Val Ala Ala Ala Cys Val Leu Ile Leu Ala Leu Phe |     |     |
| 450   | 455 | 460 |
| Leu Val His Arg Arg Lys Lys Glu Thr Arg Tyr Gly Glu Val Phe Glu |     |     |
| 465   | 470 | 475 |
| Pro Thr Val Glu Arg Gly Glu Leu Val Val Arg Tyr Arg Val Arg Lys |     |     |
| 485   | 490 | 495 |

Ser Tyr Ser Arg Arg Thr Thr Glu Ala Thr Leu Asn Ser Leu Gly Ile  
 500 505 510  
 Ser Glu Glu Leu Lys Glu Lys Leu Arg Asp Val Met Val Asp Arg His  
 515 520 525  
 Lys Val Ala Leu Gly Lys Thr Leu Gly Glu Gly Glu Phe Gly Ala Val  
 530 535 540  
 Met Glu Gly Gln Leu Asn Gln Asp Asp Ser Ile Leu Lys Val Ala Val  
 545 550 555 560  
 Lys Thr Met Lys Ile Ala Ile Cys Thr Arg Ser Glu Leu Glu Asp Phe  
 565 570 575  
 Leu Ser Glu Ala Val Cys Met Lys Glu Phe Asp His Pro Asn Val Met  
 580 585 590  
 Arg Leu Ile Gly Val Cys Phe Gln Gly Ser Asp Arg Glu Gly Phe Pro  
 595 600 605  
 Glu Pro Val Val Ile Leu Pro Phe Met Lys His Gly Asp Leu His Ser  
 610 615 620  
 Phe Leu Leu Tyr Ser Arg Leu Gly Asp Gln Pro Val Phe Leu Pro Thr  
 625 630 635 640  
 Gln Met Leu Val Lys Phe Met Ala Asp Ile Ala Ser Gly Met Glu Tyr  
 645 650 655  
 Leu Ser Thr Lys Arg Phe Ile His Arg Asp Leu Ala Ala Arg Asn Cys  
 660 665 670  
 Met Leu Asn Glu Asn Met Ser Val Cys Val Ala Asp Phe Gly Leu Ser  
 675 680 685  
 Lys Lys Ile Tyr Asn Gly Asp Tyr Tyr Arg Gln Gly Arg Ile Ala Lys  
 690 695 700  
 Met Pro Val Lys Trp Ile Ala Ile Glu Ser Leu Ala Asp Arg Val Tyr  
 705 710 715 720  
 Thr Ser Lys Ser Asp Val Trp Ser Phe Gly Val Thr Met Trp Glu Ile

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 725 |     | 730 |     | 735 |
| Ala Thr Arg Gly Gln Thr Pro Tyr Pro Gly Val Glu Asn Ser Glu Ile |     |     |     |     |     |
|   | 740 |     | 745 |     | 750 |
| Tyr Asp Tyr Leu Arg Gln Gly Asn Arg Leu Lys Gln Pro Val Asp Phe |     |     |     |     |     |
|   | 755 |     | 760 |     | 765 |
| Leu Asp Gly Leu Tyr Ser Leu Met Ser Arg Cys Trp Glu Leu Asn Pro |     |     |     |     |     |
|   | 770 |     | 775 |     | 780 |
| Arg Asp Arg Pro Ser Phe Ala Glu Leu Arg Glu Asp Leu Glu Asn Thr |     |     |     |     |     |
| 785   |     | 790 |     | 795 | 800 |
| Leu Lys Ala Leu Pro Pro Ala Gln Glu Pro Asp Glu Ile Leu Tyr Val |     |     |     |     |     |
|   | 805 |     | 810 |     | 815 |
| Asn Met Asp Glu Gly Gly Ser His Leu Glu Pro Arg Gly Ala Ala Gly |     |     |     |     |     |
|   | 820 |     | 825 |     | 830 |
| Gly Ala Asp Pro Pro Thr Gln Pro Asp Pro Lys Asp Ser Cys Ser Cys |     |     |     |     |     |
|   | 835 |     | 840 |     | 845 |
| Leu Thr Ala Ala Asp Val His Ser Ala Gly Arg Tyr Val Leu Cys Pro |     |     |     |     |     |
|   | 850 |     | 855 |     | 860 |
| Ser Thr Ala Pro Gly Pro Thr Leu Ser Ala Asp Arg Gly Cys Pro Ala |     |     |     |     |     |
| 865   |     | 870 |     | 875 | 880 |
| Pro Pro Gly Gln Glu Asp Gly Ala                                 |     |     |     |     |     |
|   | 885 |     |     |     |     |

&lt;210&gt; 986

&lt;211&gt; 2582

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (16).. (2541)

&lt;400&gt; 986

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 Met Ser Val Val Gly Ile Asp Leu Gly Phe Gln Ser  
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tgc tat gtc gct gtg gcc cgc gcc ggc ggc atc gag acg atc gct aac 99  
 Cys Tyr Val Ala Val Ala Arg Ala Gly Gly Ile Glu Thr Ile Ala Asn  
                   15                  20                  25

gag tat agc gac cgc tgc acg ccg gca tgt gtt tct ttt ggt cct aag 147  
 Glu Tyr Ser Asp Arg Cys Thr Pro Ala Cys Val Ser Phe Gly Pro Lys  
                   30                  35                  40

aat cgt tca att gga gca gca gct aag agc cag gta att tct aat gcc 195  
 Asn Arg Ser Ile Gly Ala Ala Ala Lys Ser Gln Val Ile Ser Asn Ala  
                   45                  50                  55                  60

aag aac aca gtt caa ggc ttt aaa aga ttc cat ggg cgt gca ttc tcc 243  
 Lys Asn Thr Val Gln Gly Phe Lys Arg Phe His Gly Arg Ala Phe Ser  
                   65                  70                  75

gat cca ttt gtg gaa gca gaa aaa tct aat ctt gca tat gat att gtg 291  
 Asp Pro Phe Val Glu Ala Glu Lys Ser Asn Leu Ala Tyr Asp Ile Val  
                   80                  85                  90

cag ttg ccc act gga tta acg ggc ata aag gtt aca tat atg gaa gaa 339  
 Gln Leu Pro Thr Gly Leu Thr Gly Ile Lys Val Thr Tyr Met Glu Glu  
                   95                  100                  105

gag agg aat ttt acc acg gaa caa gtg act gcc atg ctt ttg tgc aaa 387  
 Glu Arg Asn Phe Thr Thr Glu Gln Val Thr Ala Met Leu Leu Ser Lys  
                   110                  115                  120

ctg aag gag aca gca gag agt gtt ctt aag aag cct gtg gta gac tgt 435  
 Leu Lys Glu Thr Ala Glu Ser Val Leu Lys Lys Pro Val Val Asp Cys



|   |     |     |     |  |
|---|-----|-----|-----|--|
| 125   | 130 | 135 | 140 |  |
| ggt gtc tcg gtt cct agt ttc tac act gat gca gaa cgg cgg tca gtg | 483 |     |     |  |
| Val Val Ser Val Pro Ser Phe Tyr Thr Asp Ala Glu Arg Arg Ser Val |     |     |     |  |
| 145   | 150 | 155 |     |  |
| atg gat gcc aca cag att gct ggt ctc aat tgt ttg cgg tta atg aat | 531 |     |     |  |
| Met Asp Ala Thr Gln Ile Ala Gly Leu Asn Cys Leu Arg Leu Met Asn |     |     |     |  |
| 160   | 165 | 170 |     |  |
| gaa aca act gca gtt gct ctt gct tat gga atc tat aaa caa gac ctc | 579 |     |     |  |
| Glu Thr Thr Ala Val Ala Leu Ala Tyr Gly Ile Tyr Lys Gln Asp Leu |     |     |     |  |
| 175   | 180 | 185 |     |  |
| cct gcc tta gaa gaa aaa cca aga aat gta gtt ttt gta gat atg gga | 627 |     |     |  |
| Pro Ala Leu Glu Glu Lys Pro Arg Asn Val Val Phe Val Asp Met Gly |     |     |     |  |
| 190   | 195 | 200 |     |  |
| cat tct gcc tat caa gtt tct gta tgt gca ttt aat aaa gga aaa ctg | 675 |     |     |  |
| His Ser Ala Tyr Gln Val Ser Val Cys Ala Phe Asn Lys Gly Lys Leu |     |     |     |  |
| 205   | 210 | 215 | 220 |  |
| aaa gtt ttg gcc aca gct ttt gat aca aca ttg gga ggc aga aaa ttt | 723 |     |     |  |
| Lys Val Leu Ala Thr Ala Phe Asp Thr Thr Leu Gly Gly Arg Lys Phe |     |     |     |  |
| 225   | 230 | 235 |     |  |
| gat gag gtg ttg gta aat cac ttc tgt gaa gaa ttt gga aag aaa tac | 771 |     |     |  |
| Asp Glu Val Leu Val Asn His Phe Cys Glu Glu Phe Gly Lys Lys Tyr |     |     |     |  |
| 240   | 245 | 250 |     |  |
| aag cta gac ata aaa tct aaa att cgt gct tta tta cga ctg tct caa | 819 |     |     |  |
| Lys Leu Asp Ile Lys Ser Lys Ile Arg Ala Leu Leu Arg Leu Ser Gln |     |     |     |  |
| 255   | 260 | 265 |     |  |
| gag tgt gag aaa ctc aag aaa ttg atg agt gcg aat gct tca gac ctc | 867 |     |     |  |
| Glu Cys Glu Lys Leu Lys Lys Leu Met Ser Ala Asn Ala Ser Asp Leu |     |     |     |  |
| 270   | 275 | 280 |     |  |
| cct ttg agc att gag tgt ttt atg aat gat att gat gtg tcc gga act | 915 |     |     |  |

Pro Leu Ser Ile Glu Cys Phe Met Asn Asp Ile Asp Val Ser Gly Thr  
 285                                      290                                      295                                      300  
 atg aat aga ggc aaa ttt ttg gag atg tgt gat gat ctc cta gca aga 963  
 Met Asn Arg Gly Lys Phe Leu Glu Met Cys Asp Asp Leu Leu Ala Arg  
    305                                      310                                      315  
 gtg gag ccg cca ctt cga agc gtc ttg gag caa tcc aag tta aag aaa 1011  
 Val Glu Pro Pro Leu Arg Ser Val Leu Glu Gln Ser Lys Leu Lys Lys  
    320                                      325                                      330  
 gaa gat att tat gca gtg gag ata gtt ggt ggt gcc aca cga atc cct 1059  
 Glu Asp Ile Tyr Ala Val Glu Ile Val Gly Gly Ala Thr Arg Ile Pro  
    335                                      340                                      345  
 gca gtg aaa gag aag atc agc aag ttt ttt ggt aaa gaa ctc agc aca 1107  
 Ala Val Lys Glu Lys Ile Ser Lys Phe Phe Gly Lys Glu Leu Ser Thr  
    350                                      355                                      360  
 aca tta aat gca gat gaa gct gtc act cga ggc tgt gct ctg cag tgt 1155  
 Thr Leu Asn Ala Asp Glu Ala Val Thr Arg Gly Cys Ala Leu Gln Cys  
 365                                      370                                      375                                      380  
 gca att tta tca cct gct ttc aaa gtc aga gaa ttt tct atc act gat 1203  
 Ala Ile Leu Ser Pro Ala Phe Lys Val Arg Glu Phe Ser Ile Thr Asp  
    385                                      390                                      395  
 gtg gta cca tat cca ata tct ttg cga tgg aat tct cca gct gaa gag 1251  
 Val Val Pro Tyr Pro Ile Ser Leu Arg Trp Asn Ser Pro Ala Glu Glu  
    400                                      405                                      410  
 ggg tta agt gac tgt gaa gtc ttc ccc aaa aac cat gct gct cct ttc 1299  
 Gly Leu Ser Asp Cys Glu Val Phe Pro Lys Asn His Ala Ala Pro Phe  
    415                                      420                                      425  
 tcc aaa gtc ctc acc ttc tac aga aag gaa cct ttc act ctt gag gcc 1347  
 Ser Lys Val Leu Thr Phe Tyr Arg Lys Glu Pro Phe Thr Leu Glu Ala  
    430                                      435                                      440

|  |      |
|--|------|
| tac tat agt tct cct cag gat ttg ccc tat cca gat cct gct ata gct  | 1395 |
| Tyr Tyr Ser Ser Pro Gln Asp Leu Pro Tyr Pro Asp Pro Ala Ile Ala  |      |
| 445                                      450                                      455                                      460 |      |
| cag ttc tca gtt cag aaa gtc act cca cag tct gat ggc tcc agc tca  | 1443 |
| Gln Phe Ser Val Gln Lys Val Thr Pro Gln Ser Asp Gly Ser Ser Ser  |      |
| 465                                      470                                      475  |      |
| aaa gtg aaa gtc aag gtc cgg gtg aac gtg cac ggc atc ttc agt gtg  | 1491 |
| Lys Val Lys Val Lys Val Arg Val Asn Val His Gly Ile Phe Ser Val  |      |
| 480                                      485                                      490  |      |
| tcc agt gcg gcc ttg gtg gag gtg cac aag tct gaa gag agt gag gag  | 1539 |
| Ser Ser Ala Ala Leu Val Glu Val His Lys Ser Glu Glu Ser Glu Glu  |      |
| 495                                      500                                      505  |      |
| ccc atg gag acg gat cag aat gca aag gaa gag gag aag atg caa gtg  | 1587 |
| Pro Met Glu Thr Asp Gln Asn Ala Lys Glu Glu Glu Lys Met Gln Val  |      |
| 510                                      515                                      520  |      |
| gac cag gaa gaa cca cat act gaa gag cag cag cag cag cca cag aca  | 1635 |
| Asp Gln Glu Glu Pro His Thr Glu Glu Gln Gln Gln Gln Pro Gln Thr  |      |
| 525                                      530                                      535                                      540 |      |
| cca gca gaa aac aag gcg gag tct gag gag atg gag aca tct caa gct  | 1683 |
| Pro Ala Glu Asn Lys Ala Glu Ser Glu Glu Met Glu Thr Ser Gln Ala  |      |
| 545                                      550                                      555  |      |
| gga tca aaa gat aaa aag acg gac caa cca cct caa gca aag aag gca  | 1731 |
| Gly Ser Lys Asp Lys Lys Thr Asp Gln Pro Pro Gln Ala Lys Lys Ala  |      |
| 560                                      565                                      570  |      |
| aaa gtg aag acc agc act gtg gac ctc ccc att gag cac acc ctc tgg  | 1779 |
| Lys Val Lys Thr Ser Thr Val Asp Leu Pro Ile Glu His Thr Leu Trp  |      |
| 575                                      580                                      585  |      |
| cag ctg gac cgg gag atg ctc gcc ctg tac aca gag aat gag ggt aag  | 1827 |
| Gln Leu Asp Arg Glu Met Leu Ala Leu Tyr Thr Glu Asn Glu Gly Lys  |      |

|   |     |     |      |
|---|-----|-----|------|
| 590   | 595 | 600 |      |
| atg atc atg cag gat aaa ctg gag aag gaa cgg aat gac gcc aag aat |     |     | 1875 |
| Met Ile Met Gln Asp Lys Leu Glu Lys Glu Arg Asn Asp Ala Lys Asn |     |     |      |
| 605   | 610 | 615 | 620  |
| gct gtg gaa gag tat gtg tat gag atg aga gac aag ctt agt ggt gaa |     |     | 1923 |
| Ala Val Glu Glu Tyr Val Tyr Glu Met Arg Asp Lys Leu Ser Gly Glu |     |     |      |
| 625   | 630 | 635 |      |
| tat gag aag ttt gtg agt gaa gat gat cgt aat act ttt acc tta aaa |     |     | 1971 |
| Tyr Glu Lys Phe Val Ser Glu Asp Asp Arg Asn Thr Phe Thr Leu Lys |     |     |      |
| 640   | 645 | 650 |      |
| tta gag gat act gaa aat tgg ctg tat gaa gat gga gaa gat caa cca |     |     | 2019 |
| Leu Glu Asp Thr Glu Asn Trp Leu Tyr Glu Asp Gly Glu Asp Gln Pro |     |     |      |
| 655   | 660 | 665 |      |
| aag caa gtt tat gta gac aaa ttg gct gaa tta aaa agt tta ggt caa |     |     | 2067 |
| Lys Gln Val Tyr Val Asp Lys Leu Ala Glu Leu Lys Ser Leu Gly Gln |     |     |      |
| 670   | 675 | 680 |      |
| ccc att aag aca cgg ttc cag gaa tct gaa gaa aga cca aaa tta ttt |     |     | 2115 |
| Pro Ile Lys Thr Arg Phe Gln Glu Ser Glu Glu Arg Pro Lys Leu Phe |     |     |      |
| 685   | 690 | 695 | 700  |
| gaa gaa cta ggg aag caa atc caa cag tat atg aaa gtg atc agc tct |     |     | 2163 |
| Glu Glu Leu Gly Lys Gln Ile Gln Gln Tyr Met Lys Val Ile Ser Ser |     |     |      |
| 705   | 710 | 715 |      |
| ttc aaa aac aag gag gac cag tat gaa cac ttg gat gct gct gac gtg |     |     | 2211 |
| Phe Lys Asn Lys Glu Asp Gln Tyr Glu His Leu Asp Ala Ala Asp Val |     |     |      |
| 720   | 725 | 730 |      |
| aca aag gta gag aaa agc acc aat gag gcg atg gag tgg atg aat agc |     |     | 2259 |
| Thr Lys Val Glu Lys Ser Thr Asn Glu Ala Met Glu Trp Met Asn Ser |     |     |      |
| 735   | 740 | 745 |      |
| aag ctt aac ctg cag aac aaa cag agc ctg acg gtg gat cca gtt gtc |     |     | 2307 |

Lys Leu Asn Leu Gln Asn Lys Gln Ser Leu Thr Val Asp Pro Val Val  
 750 755 760  
 aag aca aag gag att gaa gct aaa att aag gag ctg aca agt att tgc 2355  
 Lys Thr Lys Glu Ile Glu Ala Lys Ile Lys Glu Leu Thr Ser Ile Cys  
 765 770 775 780  
 agt cct ata att tca aaa ccc aaa ccc aaa gtg gaa ccc cca aag gag 2403  
 Ser Pro Ile Ile Ser Lys Pro Lys Pro Lys Val Glu Pro Pro Lys Glu  
 785 790 795  
 gaa cca aaa cat gct gag cag aat gga cca gtg gat ggc caa gga gac 2451  
 Glu Pro Lys His Ala Glu Gln Asn Gly Pro Val Asp Gly Gln Gly Asp  
 800 805 810  
 aac cca ggc tcc cag gct gct gag cac ggt gca gac aca gct gtg cct 2499  
 Asn Pro Gly Ser Gln Ala Ala Glu His Gly Ala Asp Thr Ala Val Pro  
 815 820 825  
 tct gat ggc gac aag aag ctt cct gag atg gac att gat tga 2541  
 Ser Asp Gly Asp Lys Lys Leu Pro Glu Met Asp Ile Asp  
 830 835 840  
 ttccaacact tgtttatatt aaaacagact attataaagc t 2582

&lt;210&gt; 987

&lt;211&gt; 841

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 987

Met Ser Val Val Gly Ile Asp Leu Gly Phe Gln Ser Cys Tyr Val Ala  
 1 5 10 15  
 Val Ala Arg Ala Gly Gly Ile Glu Thr Ile Ala Asn Glu Tyr Ser Asp  
 20 25 30

Arg Cys Thr Pro Ala Cys Val Ser Phe Gly Pro Lys Asn Arg Ser Ile  
 35 40 45  
 Gly Ala Ala Ala Lys Ser Gln Val Ile Ser Asn Ala Lys Asn Thr Val  
 50 55 60  
 Gln Gly Phe Lys Arg Phe His Gly Arg Ala Phe Ser Asp Pro Phe Val  
 65 70 75 80  
 Glu Ala Glu Lys Ser Asn Leu Ala Tyr Asp Ile Val Gln Leu Pro Thr  
 85 90 95  
 Gly Leu Thr Gly Ile Lys Val Thr Tyr Met Glu Glu Glu Arg Asn Phe  
 100 105 110  
 Thr Thr Glu Gln Val Thr Ala Met Leu Leu Ser Lys Leu Lys Glu Thr  
 115 120 125  
 Ala Glu Ser Val Leu Lys Lys Pro Val Val Asp Cys Val Val Ser Val  
 130 135 140  
 Pro Ser Phe Tyr Thr Asp Ala Glu Arg Arg Ser Val Met Asp Ala Thr  
 145 150 155 160  
 Gln Ile Ala Gly Leu Asn Cys Leu Arg Leu Met Asn Glu Thr Thr Ala  
 165 170 175  
 Val Ala Leu Ala Tyr Gly Ile Tyr Lys Gln Asp Leu Pro Ala Leu Glu  
 180 185 190  
 Glu Lys Pro Arg Asn Val Val Phe Val Asp Met Gly His Ser Ala Tyr  
 195 200 205  
 Gln Val Ser Val Cys Ala Phe Asn Lys Gly Lys Leu Lys Val Leu Ala  
 210 215 220  
 Thr Ala Phe Asp Thr Thr Leu Gly Gly Arg Lys Phe Asp Glu Val Leu  
 225 230 235 240  
 Val Asn His Phe Cys Glu Glu Phe Gly Lys Lys Tyr Lys Leu Asp Ile  
 245 250 255  
 Lys Ser Lys Ile Arg Ala Leu Leu Arg Leu Ser Gln Glu Cys Glu Lys

|   |     |     |
|---|-----|-----|
| 260   | 265 | 270 |
| Leu Lys Lys Leu Met Ser Ala Asn Ala Ser Asp Leu Pro Leu Ser Ile |     |     |
| 275   | 280 | 285 |
| Glu Cys Phe Met Asn Asp Ile Asp Val Ser Gly Thr Met Asn Arg Gly |     |     |
| 290   | 295 | 300 |
| Lys Phe Leu Glu Met Cys Asp Asp Leu Leu Ala Arg Val Glu Pro Pro |     |     |
| 305   | 310 | 315 |
| Leu Arg Ser Val Leu Glu Gln Ser Lys Leu Lys Lys Glu Asp Ile Tyr |     |     |
| 325   | 330 | 335 |
| Ala Val Glu Ile Val Gly Gly Ala Thr Arg Ile Pro Ala Val Lys Glu |     |     |
| 340   | 345 | 350 |
| Lys Ile Ser Lys Phe Phe Gly Lys Glu Leu Ser Thr Thr Leu Asn Ala |     |     |
| 355   | 360 | 365 |
| Asp Glu Ala Val Thr Arg Gly Cys Ala Leu Gln Cys Ala Ile Leu Ser |     |     |
| 370   | 375 | 380 |
| Pro Ala Phe Lys Val Arg Glu Phe Ser Ile Thr Asp Val Val Pro Tyr |     |     |
| 385   | 390 | 395 |
| Pro Ile Ser Leu Arg Trp Asn Ser Pro Ala Glu Glu Gly Leu Ser Asp |     |     |
| 405   | 410 | 415 |
| Cys Glu Val Phe Pro Lys Asn His Ala Ala Pro Phe Ser Lys Val Leu |     |     |
| 420   | 425 | 430 |
| Thr Phe Tyr Arg Lys Glu Pro Phe Thr Leu Glu Ala Tyr Tyr Ser Ser |     |     |
| 435   | 440 | 445 |
| Pro Gln Asp Leu Pro Tyr Pro Asp Pro Ala Ile Ala Gln Phe Ser Val |     |     |
| 450   | 455 | 460 |
| Gln Lys Val Thr Pro Gln Ser Asp Gly Ser Ser Ser Lys Val Lys Val |     |     |
| 465   | 470 | 475 |
| Lys Val Arg Val Asn Val His Gly Ile Phe Ser Val Ser Ser Ala Ala |     |     |
| 485   | 490 | 495 |

Leu Val Glu Val His Lys Ser Glu Glu Ser Glu Glu Pro Met Glu Thr  
                   500                                  505                                  510  
 Asp Gln Asn Ala Lys Glu Glu Glu Lys Met Gln Val Asp Gln Glu Glu  
                   515                                  520                                  525  
 Pro His Thr Glu Glu Gln Gln Gln Gln Pro Gln Thr Pro Ala Glu Asn  
                   530                                  535                                  540  
 Lys Ala Glu Ser Glu Glu Met Glu Thr Ser Gln Ala Gly Ser Lys Asp  
 545                                  550                                  555                                  560  
 Lys Lys Thr Asp Gln Pro Pro Gln Ala Lys Lys Ala Lys Val Lys Thr  
                   565                                  570                                  575  
 Ser Thr Val Asp Leu Pro Ile Glu His Thr Leu Trp Gln Leu Asp Arg  
                   580                                  585                                  590  
 Glu Met Leu Ala Leu Tyr Thr Glu Asn Glu Gly Lys Met Ile Met Gln  
                   595                                  600                                  605  
 Asp Lys Leu Glu Lys Glu Arg Asn Asp Ala Lys Asn Ala Val Glu Glu  
                   610                                  615                                  620  
 Tyr Val Tyr Glu Met Arg Asp Lys Leu Ser Gly Glu Tyr Glu Lys Phe  
 625                                  630                                  635                                  640  
 Val Ser Glu Asp Asp Arg Asn Thr Phe Thr Leu Lys Leu Glu Asp Thr  
                   645                                  650                                  655  
 Glu Asn Trp Leu Tyr Glu Asp Gly Glu Asp Gln Pro Lys Gln Val Tyr  
                   660                                  665                                  670  
 Val Asp Lys Leu Ala Glu Leu Lys Ser Leu Gly Gln Pro Ile Lys Thr  
                   675                                  680                                  685  
 Arg Phe Gln Glu Ser Glu Glu Arg Pro Lys Leu Phe Glu Glu Leu Gly  
                   690                                  695                                  700  
 Lys Gln Ile Gln Gln Tyr Met Lys Val Ile Ser Ser Phe Lys Asn Lys  
 705                                  710                                  715                                  720  
 Glu Asp Gln Tyr Glu His Leu Asp Ala Ala Asp Val Thr Lys Val Glu



|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 725 |     | 730 |     | 735 |
| Lys Ser Thr Asn Glu Ala Met Glu Trp Met Asn Ser Lys Leu Asn Leu |     |     |     |     |     |
|   | 740 |     | 745 |     | 750 |
| Gln Asn Lys Gln Ser Leu Thr Val Asp Pro Val Val Lys Thr Lys Glu |     |     |     |     |     |
|   | 755 |     | 760 |     | 765 |
| Ile Glu Ala Lys Ile Lys Glu Leu Thr Ser Ile Cys Ser Pro Ile Ile |     |     |     |     |     |
|   | 770 |     | 775 |     | 780 |
| Ser Lys Pro Lys Pro Lys Val Glu Pro Pro Lys Glu Glu Pro Lys His |     |     |     |     |     |
| 785   |     | 790 |     | 795 | 800 |
| Ala Glu Gln Asn Gly Pro Val Asp Gly Gln Gly Asp Asn Pro Gly Ser |     |     |     |     |     |
|   | 805 |     | 810 |     | 815 |
| Gln Ala Ala Glu His Gly Ala Asp Thr Ala Val Pro Ser Asp Gly Asp |     |     |     |     |     |
|   | 820 |     | 825 |     | 830 |
| Lys Lys Leu Pro Glu Met Asp Ile Asp                             |     |     |     |     |     |
|   | 835 |     | 840 |     |     |

&lt;210&gt; 988

&lt;211&gt; 494

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 988

atagatggtg gggaggccaa ccgctatgga ttacagccac caagcaaggg gtgagagccg 60  
 ggacattctt ttggtctgtg agcatccctc acgagcggag aatcctaact atccttcagt 120  
 ggcittccct gccagacaat gagaggcctt cagtttatgc ctctactcc gagcagcctg 180  
 atttttctgg acacaagtac ggcccttttg gccctgagat gacaaatect ctgagggaga 240  
 ttgacaagac cgtggggcag ttaatggacg gactgaaaca actcaagctg caccgttgtg 300  
 tgaatgttat ctttgttgga gaccatggaa tggaagacgt gacatgtgac agaactgagt 360  
 tcttgagcaa ctatctgact aacgtggatg atattacttt agtacctgga actctaggaa 420

gaattcgacc caagattcgc aataatcitta aatatgaccc tagagccatt attgctaacc 480  
 tcacgtgtag aaac 494

<210> 989

<211> 2539

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (221).. (1798)

<400> 989

gtgcgtcctg cgggggagga ggcgcgagga ggcggaagc gcagccgggg aggtgggggc 60  
 agaggcacag acagaggcgc ggaggctccg agagagaaga cgtggagggga gggacggagc 120  
 ctggacagcg gtggaccgcg gccgcgcgcg ccaggcaaag agcagcgcg agcaggcgcc 180  
 gggcaccgag aggggaggca ctggtgatct ctgcccgctc atg cac aga gct ccc 235

Met His Arg Ala Pro

1 5

tct ccc aca gcg gaa cag cca cct ggc aga ggg gat aac aca cgc cgg 283

Ser Pro Thr Ala Glu Gln Pro Pro Gly Arg Gly Asp Asn Thr Arg Arg

10 15 20

acc ccc caa ccc aga ttc aag gca agt gcc cca gcc atg gca ctg cct 331

Thr Pro Gln Pro Arg Phe Lys Ala Ser Ala Pro Ala Met Ala Leu Pro

25 30 35

cgg aca ctg ggt gag cta cag ctg tat cgg gtc ctg caa cgc gcc aac 379

Arg Thr Leu Gly Glu Leu Gln Leu Tyr Arg Val Leu Gln Arg Ala Asn

40 45 50

ctc ctc tct tac tac gag acc ttc atc cag cag gga gga gat gat gta 427

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Leu | Ser | Tyr | Tyr | Glu | Thr | Phe | Ile | Gln | Gln | Gly | Gly | Asp | Asp | Val |     |  |
| 55  |     |     |     |     |     | 60  |     |     |     |     | 65  |     |     |     |     |     |  |
| cag | cag | ctg | tgt | gag | gct | ggc | gag | gag | gag | ttc | ctg | gaa | atc | atg | gca | 475 |  |
| Gln | Gln | Leu | Cys | Glu | Ala | Gly | Glu | Glu | Glu | Phe | Leu | Glu | Ile | Met | Ala |     |  |
| 70  |     |     |     |     | 75  |     |     |     | 80  |     |     |     |     | 85  |     |     |  |
| ctc | gtg | ggc | atg | gcc | acc | aaa | cca | ctc | cat | gtc | cga | cgt | cta | cag | aag | 523 |  |
| Leu | Val | Gly | Met | Ala | Thr | Lys | Pro | Leu | His | Val | Arg | Arg | Leu | Gln | Lys |     |  |
|     |     |     |     | 90  |     |     |     | 95  |     |     |     |     | 100 |     |     |     |  |
| gct | ctg | aga | gaa | tgg | gcc | acc | aat | cca | ggg | ctc | ttc | agc | caa | cca | gtg | 571 |  |
| Ala | Leu | Arg | Glu | Trp | Ala | Thr | Asn | Pro | Gly | Leu | Phe | Ser | Gln | Pro | Val |     |  |
|     |     | 105 |     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     |  |
| cct | gct | gtg | ccc | gtc | tcc | agc | atc | cca | ctt | ttc | aag | atc | tct | gag | aca | 619 |  |
| Pro | Ala | Val | Pro | Val | Ser | Ser | Ile | Pro | Leu | Phe | Lys | Ile | Ser | Glu | Thr |     |  |
|     |     | 120 |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     |     |  |
| gct | ggt | acc | cgg | aaa | ggg | agc | atg | agc | aat | ggg | cac | ggc | agc | cca | gga | 667 |  |
| Ala | Gly | Thr | Arg | Lys | Gly | Ser | Met | Ser | Asn | Gly | His | Gly | Ser | Pro | Gly |     |  |
|     | 135 |     |     |     | 140 |     |     |     | 145 |     |     |     |     |     |     |     |  |
| gaa | aag | gcg | ggc | agt | gct | cga | agc | ttt | agc | ccc | aag | agt | ccc | ctc | gaa | 715 |  |
| Glu | Lys | Ala | Gly | Ser | Ala | Arg | Ser | Phe | Ser | Pro | Lys | Ser | Pro | Leu | Glu |     |  |
| 150 |     |     |     | 155 |     |     |     | 160 |     |     |     | 165 |     |     |     |     |  |
| ctt | gga | gag | aag | ttg | tcg | cca | ctc | cct | gga | gga | cct | ggg | gca | ggg | gat | 763 |  |
| Leu | Gly | Glu | Lys | Leu | Ser | Pro | Leu | Pro | Gly | Gly | Pro | Gly | Ala | Gly | Asp |     |  |
|     |     |     |     | 170 |     |     |     | 175 |     |     |     | 180 |     |     |     |     |  |
| ccc | cgg | atc | tgg | cca | ggc | cag | agc | act | cca | gaa | tct | gat | gtt | gga | gca | 811 |  |
| Pro | Arg | Ile | Trp | Pro | Gly | Gln | Ser | Thr | Pro | Glu | Ser | Asp | Val | Gly | Ala |     |  |
|     |     | 185 |     |     |     | 190 |     |     |     |     | 195 |     |     |     |     |     |  |
| ggg | gga | gaa | gag | gag | gcc | ggg | tct | ccc | cct | ttc | tcc | cca | cct | gca | ggg | 859 |  |
| Gly | Gly | Glu | Glu | Glu | Ala | Gly | Ser | Pro | Pro | Phe | Ser | Pro | Pro | Ala | Gly |     |  |
|     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |     |     |     |     |     |  |

|   |      |
|---|------|
| gga gga gtc tct gaa ggg cct ggg gtt ggg ggg gtg gca gct ggt ggt | 907  |
| Gly Gly Val Ser Glu Gly Pro Gly Val Gly Gly Val Ala Ala Gly Gly |      |
| 215 220 225   |      |
| gca ggg ggt tgt cca gac cgc ctg gaa cca gag atg gtg cga atg gtg | 955  |
| Ala Gly Gly Cys Pro Asp Arg Leu Glu Pro Glu Met Val Arg Met Val |      |
| 230 235 240 245   |      |
| gtg gag agt gtt gag agg atc ttc cgg agt ttc ccc agg ggt gac act | 1003 |
| Val Glu Ser Val Glu Arg Ile Phe Arg Ser Phe Pro Arg Gly Asp Thr |      |
| 250 255 260   |      |
| gga gag atc gca tcc ctg ttg aag ctg aat aag aag ctg gcg cgg agc | 1051 |
| Gly Glu Ile Ala Ser Leu Leu Lys Leu Asn Lys Lys Leu Ala Arg Ser |      |
| 265 270 275   |      |
| gtc ggg cac atc ttt gag atg gac gat cat gac gcc cag aag gaa gag | 1099 |
| Val Gly His Ile Phe Glu Met Asp Asp His Asp Ala Gln Lys Glu Glu |      |
| 280 285 290   |      |
| gag atc cgg aag tac agc gtc atc tac ggc cgc ctg gac tcc aaa agg | 1147 |
| Glu Ile Arg Lys Tyr Ser Val Ile Tyr Gly Arg Leu Asp Ser Lys Arg |      |
| 295 300 305   |      |
| cgg gag ggc aaa cag ctt agc ttg cac gag ctg acc atc aac gag gct | 1195 |
| Arg Glu Gly Lys Gln Leu Ser Leu His Glu Leu Thr Ile Asn Glu Ala |      |
| 310 315 320 325   |      |
| gct gcc cag ttc tgc atg agg gac aac act ctt tta ctg cga agg gta | 1243 |
| Ala Ala Gln Phe Cys Met Arg Asp Asn Thr Leu Leu Leu Arg Arg Val |      |
| 330 335 340   |      |
| gaa ctc ttc tca ctg tcc cga caa gta gcc cga gag agc acc tat ctt | 1291 |
| Glu Leu Phe Ser Leu Ser Arg Gln Val Ala Arg Glu Ser Thr Tyr Leu |      |
| 345 350 355   |      |
| tct tcc ttg aag gga tcc agg ctt cac tct gaa gaa ttg gga ggg cca | 1339 |
| Ser Ser Leu Lys Gly Ser Arg Leu His Ser Glu Glu Leu Gly Gly Pro |      |

|   |     |     |      |
|---|-----|-----|------|
| 360   | 365 | 370 |      |
| cca ctg aag aaa ctg aaa caa gag gtt gga gaa cag agt cac aat gaa |     |     | 1387 |
| Pro Leu Lys Lys Leu Lys Gln Glu Val Gly Glu Gln Ser His Asn Glu |     |     |      |
| 375   | 380 | 385 |      |
| atc cag cag cct cct cca ggc cct gag tcc tat gca ccc cca tac cgc |     |     | 1435 |
| Ile Gln Gln Pro Pro Pro Gly Pro Glu Ser Tyr Ala Pro Pro Tyr Arg |     |     |      |
| 390   | 395 | 400 | 405  |
| ccc agc cta gag gag gac agc gcc agt ctg tct ggg gag agc ctg gat |     |     | 1483 |
| Pro Ser Leu Glu Glu Asp Ser Ala Ser Leu Ser Gly Glu Ser Leu Asp |     |     |      |
| 410   | 415 | 420 |      |
| ggc cac ttg cag gct gtg ggg tcg tgc cca agg ctg acg ccg ccc cct |     |     | 1531 |
| Gly His Leu Gln Ala Val Gly Ser Cys Pro Arg Leu Thr Pro Pro Pro |     |     |      |
| 425   | 430 | 435 |      |
| gct gac ctg ccc ctg gca ttg cca gcg cat ggg cta tgg agc cgc cac |     |     | 1579 |
| Ala Asp Leu Pro Leu Ala Leu Pro Ala His Gly Leu Trp Ser Arg His |     |     |      |
| 440   | 445 | 450 |      |
| atc ttg cag cag aca ctg atg gat gag ggg ctg tgg ctc gcc cgc ctc |     |     | 1627 |
| Ile Leu Gln Gln Thr Leu Met Asp Glu Gly Leu Trp Leu Ala Arg Leu |     |     |      |
| 455   | 460 | 465 |      |
| gtc tcc cat gat cgt gtg ggc cga ctc agc ccc tgt gtg cct gcg aag |     |     | 1675 |
| Val Ser His Asp Arg Val Gly Arg Leu Ser Pro Cys Val Pro Ala Lys |     |     |      |
| 470   | 475 | 480 | 485  |
| ccg cct ctc gca gag ttc gag gag ggg ttg ctg gac cgc tgc cct gcc |     |     | 1723 |
| Pro Pro Leu Ala Glu Phe Glu Glu Gly Leu Leu Asp Arg Cys Pro Ala |     |     |      |
| 490   | 495 | 500 |      |
| ccg gga cct cat cct gct ctg gtg gag ggc cgc agg agc agc gtt aaa |     |     | 1771 |
| Pro Gly Pro His Pro Ala Leu Val Glu Gly Arg Arg Ser Ser Val Lys |     |     |      |
| 505   | 510 | 515 |      |
| gtg gag gca gaa gcc agc cgg cag tga aagtggggga agtcacagac       |     |     | 1818 |

Val Glu Ala Glu Ala Ser Arg Gln

520

525

ccaggaccca gacttctggc tcacttagac cccacattc tccatccttg cactcgccac 1878  
 taccctagaa ggatccttct gctgccctct gcctcccatc cgccccaatgg gcacaggact 1938  
 atggggcttc aagcaataac aggcaggggc ctggccagag gacacaagga cggtgcaagg 1998  
 tgtgccctca cccggcttag gggcacggac ttgacctcca gcctgctggg gctctccttt 2058  
 ctctcatacc acacacacac acacacacac acacacacac acacataatc tccaggctggc 2118  
 cagcagtggg gtgagcaact gaactacttc acttgacac ggagaaagaa ctccccagg 2178  
 aaggcttagc gacttacagt ggaaccttca ctctgagact gggggcttgg gaaaactggg 2238  
 tctccctcc ccatcccat tttctgtgt tctagttgt ttctttaatt taacaagtgc 2298  
 tgcagtttgc ccaccgttc ttatctcccc cctccccga gacctttttt tcagcactgt 2358  
 gtgggagggt gcccgaagt tccctccacc agccccttag aggcctgggt tggaccctgg 2418  
 gcctctcaa ccggcaggac tgcagcacct gtcggacact tagcgtgtct ttctttcag 2478  
 attgtgtaca gtagattatt tattttgtta ttttgaata aaatttatit tatggcttag 2538  
 g 2539

&lt;210&gt; 990

&lt;211&gt; 525

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 990

Met His Arg Ala Pro Ser Pro Thr Ala Glu Gln Pro Pro Gly Arg Gly  
 1 5 10 15  
 Asp Asn Thr Arg Arg Thr Pro Gln Pro Arg Phe Lys Ala Ser Ala Pro  
 20 25 30  
 Ala Met Ala Leu Pro Arg Thr Leu Gly Glu Leu Gln Leu Tyr Arg Val  
 35 40 45  
 Leu Gln Arg Ala Asn Leu Leu Ser Tyr Tyr Glu Thr Phe Ile Gln Gln

|   |     |     |
|---|-----|-----|
| 50  | 55  | 60  |
| Gly Gly Asp Asp Val Gln Gln Leu Cys Glu Ala Gly Glu Glu Glu Phe |     |     |
| 65  | 70  | 75  |
| Leu Glu Ile Met Ala Leu Val Gly Met Ala Thr Lys Pro Leu His Val |     |     |
| 85  | 90  | 95  |
| Arg Arg Leu Gln Lys Ala Leu Arg Glu Trp Ala Thr Asn Pro Gly Leu |     |     |
| 100   | 105 | 110 |
| Phe Ser Gln Pro Val Pro Ala Val Pro Val Ser Ser Ile Pro Leu Phe |     |     |
| 115   | 120 | 125 |
| Lys Ile Ser Glu Thr Ala Gly Thr Arg Lys Gly Ser Met Ser Asn Gly |     |     |
| 130   | 135 | 140 |
| His Gly Ser Pro Gly Glu Lys Ala Gly Ser Ala Arg Ser Phe Ser Pro |     |     |
| 145   | 150 | 155 |
| Lys Ser Pro Leu Glu Leu Gly Glu Lys Leu Ser Pro Leu Pro Gly Gly |     |     |
| 165   | 170 | 175 |
| Pro Gly Ala Gly Asp Pro Arg Ile Trp Pro Gly Gln Ser Thr Pro Glu |     |     |
| 180   | 185 | 190 |
| Ser Asp Val Gly Ala Gly Gly Glu Glu Glu Ala Gly Ser Pro Pro Phe |     |     |
| 195   | 200 | 205 |
| Ser Pro Pro Ala Gly Gly Gly Val Ser Glu Gly Pro Gly Val Gly Gly |     |     |
| 210   | 215 | 220 |
| Val Ala Ala Gly Gly Ala Gly Gly Cys Pro Asp Arg Leu Glu Pro Glu |     |     |
| 225   | 230 | 235 |
| Met Val Arg Met Val Val Glu Ser Val Glu Arg Ile Phe Arg Ser Phe |     |     |
| 245   | 250 | 255 |
| Pro Arg Gly Asp Thr Gly Glu Ile Ala Ser Leu Leu Lys Leu Asn Lys |     |     |
| 260   | 265 | 270 |
| Lys Leu Ala Arg Ser Val Gly His Ile Phe Glu Met Asp Asp His Asp |     |     |
| 275   | 280 | 285 |

Ala Gln Lys Glu Glu Glu Ile Arg Lys Tyr Ser Val Ile Tyr Gly Arg  
 290 295 300  
 Leu Asp Ser Lys Arg Arg Glu Gly Lys Gln Leu Ser Leu His Glu Leu  
 305 310 315 320  
 Thr Ile Asn Glu Ala Ala Ala Gln Phe Cys Met Arg Asp Asn Thr Leu  
 325 330 335  
 Leu Leu Arg Arg Val Glu Leu Phe Ser Leu Ser Arg Gln Val Ala Arg  
 340 345 350  
 Glu Ser Thr Tyr Leu Ser Ser Leu Lys Gly Ser Arg Leu His Ser Glu  
 355 360 365  
 Glu Leu Gly Gly Pro Pro Leu Lys Lys Leu Lys Gln Glu Val Gly Glu  
 370 375 380  
 Gln Ser His Asn Glu Ile Gln Gln Pro Pro Pro Gly Pro Glu Ser Tyr  
 385 390 395 400  
 Ala Pro Pro Tyr Arg Pro Ser Leu Glu Glu Asp Ser Ala Ser Leu Ser  
 405 410 415  
 Gly Glu Ser Leu Asp Gly His Leu Gln Ala Val Gly Ser Cys Pro Arg  
 420 425 430  
 Leu Thr Pro Pro Pro Ala Asp Leu Pro Leu Ala Leu Pro Ala His Gly  
 435 440 445  
 Leu Trp Ser Arg His Ile Leu Gln Gln Thr Leu Met Asp Glu Gly Leu  
 450 455 460  
 Trp Leu Ala Arg Leu Val Ser His Asp Arg Val Gly Arg Leu Ser Pro  
 465 470 475 480  
 Cys Val Pro Ala Lys Pro Pro Leu Ala Glu Phe Glu Glu Gly Leu Leu  
 485 490 495  
 Asp Arg Cys Pro Ala Pro Gly Pro His Pro Ala Leu Val Glu Gly Arg  
 500 505 510  
 Arg Ser Ser Val Lys Val Glu Ala Glu Ala Ser Arg Gln



515

520

525

&lt;210&gt; 991

&lt;211&gt; 962

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;400&gt; 991

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gggagagttc cgtctgctgt gtgaggactg cggccaccac cgctgacgat gcagatcttt 60
gtgaaaacct taactggtaa gaccatcacc ctggaggctg agcccagtga caccatagag 120
aatgtcaagg caaagatcca ggacaaggag ggcatcccc ctgaccagca gaggctgac 180
tttgcaggca agcagctgga agatggccgc accctgtcag actacaacat ccagaaagag 240
tccagcctgc acctggctct tcgcttcaga ggtggcatgc agatctttgt gaagagctgg 300
caggcaagac catcagcctg gacgtcgagc ccagtgttac caccaagaag gtcagacagg 360
aagacggacg tgcctgctca gacagtatct gaaagaccct ccttgtgctt gttcggggtg 420
tgagggggag gtgcttagtg ttccatgctg ttaagctgtt aacagtttat tgcactttga 480
ataacgtcgt gcattcggag aaagagacag agacatcggc cggagctcag gccgttgagt 540
ggggctaatt taggttggct ggccggcgctg ttaacggctg gacgtggaaa cgcgtcagta 600
cgacgttatg cgttggagaa tcgctgttgc gagttgtagt gactagggcc cgccgattgg 660
ctctcaaagt ggcatgaga tgcgatgagc tccgtgtacg agatacggac gagagctgct 720
gtccggaacg cgtgactgtg gagcgtgcgg cccgttgatt gtcgtgtgtg cagatcatgt 780
gtccgtgcag tatacgcgct gtaggctcag tcgctacgt gccacaaggt gtgagggcgt 840
ggttgccgac gtgagagtca gtaggccact gtataggtgt cgagcagaca gtgcgtcttg 900
atgtgctgtg cggatggtaa gagtaagatg attgctggag cggactctat atctcgagac 960
tg

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962

&lt;210&gt; 992

&lt;211&gt; 4167

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1).. (4167)

&lt;400&gt; 992

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atg agc cgg ccc ccg ccg acg ggg aaa atg ccc ggc gcc ccc gag gcc 48
Met Ser Arg Pro Pro Pro Thr Gly Lys Met Pro Gly Ala Pro Glu Ala
  1           5           10           15
gcg ccg ggg gac ggg gcg ggc gcc ggc cgt cag agg aag ctg gag gcg 96
Ala Pro Gly Asp Gly Ala Gly Ala Gly Arg Gln Arg Lys Leu Glu Ala
      20           25           30
ctc atc cga gac cct cgc tcg ccc atc aac gtg gag agt ctg ctg gat 144
Leu Ile Arg Asp Pro Arg Ser Pro Ile Asn Val Glu Ser Leu Leu Asp
      35           40           45
ggc tta aat tcc ttg gtc ctt gat ttg gat ttt cct gct ttg agg aaa 192
Gly Leu Asn Ser Leu Val Leu Asp Leu Asp Phe Pro Ala Leu Arg Lys
      50           55           60
aat aaa aat ata gat aac ttc tta aat aga tat gag aaa att gtg aaa 240
Asn Lys Asn Ile Asp Asn Phe Leu Asn Arg Tyr Glu Lys Ile Val Lys
      65           70           75           80
aaa atc aga ggt tta cag atg aaa gcg gaa gac tat gat gtt gta aaa 288
Lys Ile Arg Gly Leu Gln Met Lys Ala Glu Asp Tyr Asp Val Val Lys
      85           90           95
gtt att gga aga ggt gct ttt ggt gaa gtt cag ttg gtt cgt cat aag 336
Val Ile Gly Arg Gly Ala Phe Gly Glu Val Gln Leu Val Arg His Lys
      100           105           110
gca tca cag aag gtt tat gca atg aag ctt ctt agt aaa ttt gaa atg 384

```

|   |     |
|---|-----|
| Ala Ser Gln Lys Val Tyr Ala Met Lys Leu Leu Ser Lys Phe Glu Met |     |
| 115   | 120 |
| 125   |     |
| ata aaa aga tca gat tct gct ttt ttc tgg gaa gaa aga gat att atg | 432 |
| Ile Lys Arg Ser Asp Ser Ala Phe Phe Trp Glu Glu Arg Asp Ile Met |     |
| 130   | 135 |
| 140   |     |
| gcc ttt gcc aac agt ccc tgg gta gtt cag ctc ttc tgt gcc ttt caa | 480 |
| Ala Phe Ala Asn Ser Pro Trp Val Val Gln Leu Phe Cys Ala Phe Gln |     |
| 145   | 150 |
| 155   | 160 |
| gat gac agg tac ctg tac atg gtg atg gag tac atg cca ggc gga gac | 528 |
| Asp Asp Arg Tyr Leu Tyr Met Val Met Glu Tyr Met Pro Gly Gly Asp |     |
| 165   | 170 |
| 175   |     |
| ctc gtc aac ctt atg agt aat tat gat gta cct gaa aag tgg gcc aag | 576 |
| Leu Val Asn Leu Met Ser Asn Tyr Asp Val Pro Glu Lys Trp Ala Lys |     |
| 180   | 185 |
| 190   |     |
| ttt tac act gct gaa gta gtg ctt gca ctg gat gca ata cac tcc atg | 624 |
| Phe Tyr Thr Ala Glu Val Val Leu Ala Leu Asp Ala Ile His Ser Met |     |
| 195   | 200 |
| 205   |     |
| ggc tta ata cac aga gat gtg aag cct gat aac atg cta ttg gat aaa | 672 |
| Gly Leu Ile His Arg Asp Val Lys Pro Asp Asn Met Leu Leu Asp Lys |     |
| 210   | 215 |
| 220   |     |
| cat gga cat cta aag tta gca gat ttt ggc aca tgt atg aaa atg gat | 720 |
| His Gly His Leu Lys Leu Ala Asp Phe Gly Thr Cys Met Lys Met Asp |     |
| 225   | 230 |
| 235   | 240 |
| gaa aca ggc atg gtg cat tgc gac aca gca gtt gga act ccc gac tac | 768 |
| Glu Thr Gly Met Val His Cys Asp Thr Ala Val Gly Thr Pro Asp Tyr |     |
| 245   | 250 |
| 255   |     |
| ata tcg ccc gag gtt ctg aaa tca caa gga ggt gat ggt tac tat ggg | 816 |
| Ile Ser Pro Glu Val Leu Lys Ser Gln Gly Gly Asp Gly Tyr Tyr Gly |     |
| 260   | 265 |
| 270   |     |

cga gaa tgt gat tgg tgg tct gta ggt gtt ttc ctt ttt gag atg tta 864  
 Arg Glu Cys Asp Trp Trp Ser Val Gly Val Phe Leu Phe Glu Met Leu  
 275 280 285  
 gta ggg gac act cca ttt tac gca gat tca ctt gta gga acc tac agc 912  
 Val Gly Asp Thr Pro Phe Tyr Ala Asp Ser Leu Val Gly Thr Tyr Ser  
 290 295 300  
 aaa att atg gat cat aaa aat tca ctg tgt ttt cct gaa gat aca gaa 960  
 Lys Ile Met Asp His Lys Asn Ser Leu Cys Phe Pro Glu Asp Thr Glu  
 305 310 315 320  
 att tct aaa cat gcg aag aat ctc ata tgt gcc ttc tta aca gac agg 1008  
 Ile Ser Lys His Ala Lys Asn Leu Ile Cys Ala Phe Leu Thr Asp Arg  
 325 330 335  
 gag gta cga ctt gga aga aat ggg gta gaa gaa atc aaa cag cat cct 1056  
 Glu Val Arg Leu Gly Arg Asn Gly Val Glu Glu Ile Lys Gln His Pro  
 340 345 350  
 ttc ttt aag aat gat caa tgg aat tgg gat aac ata aga gag acg gca 1104  
 Phe Phe Lys Asn Asp Gln Trp Asn Trp Asp Asn Ile Arg Glu Thr Ala  
 355 360 365  
 gct cca gtg gta cct gag ctc agc agt gac ata gac agc agc aac ttt 1152  
 Ala Pro Val Val Pro Glu Leu Ser Ser Asp Ile Asp Ser Ser Asn Phe  
 370 375 380  
 gac gac att gag gat gac aaa ggc gat gta gag acc ttc ccg att cct 1200  
 Asp Asp Ile Glu Asp Asp Lys Gly Asp Val Glu Thr Phe Pro Ile Pro  
 385 390 395 400  
 aaa gct ttt gtg gga aat cag ctg cct ttt ata gga ttt acc tac ttt 1248  
 Lys Ala Phe Val Gly Asn Gln Leu Pro Phe Ile Gly Phe Thr Tyr Phe  
 405 410 415  
 aga gaa aat ttg tta tta agt gac tct cca cct tgt aga gaa aat gat 1296  
 Arg Glu Asn Leu Leu Leu Ser Asp Ser Pro Pro Cys Arg Glu Asn Asp

|   |     |     |      |
|---|-----|-----|------|
| 420   | 425 | 430 |      |
| gca ata caa aca agg aaa agt gaa gaa agt cag gag att cag aaa aaa |     |     | 1344 |
| Ala Ile Gln Thr Arg Lys Ser Glu Glu Ser Gln Glu Ile Gln Lys Lys |     |     |      |
| 435   | 440 | 445 |      |
| tta tat gca cta gaa gaa cac ctt agc agt gag gtg caa gcc aag gag |     |     | 1392 |
| Leu Tyr Ala Leu Glu Glu His Leu Ser Ser Glu Val Gln Ala Lys Glu |     |     |      |
| 450   | 455 | 460 |      |
| gag ctg gaa cag aag tgc aaa tct att aat act cgc cta gag aaa aca |     |     | 1440 |
| Glu Leu Glu Gln Lys Cys Lys Ser Ile Asn Thr Arg Leu Glu Lys Thr |     |     |      |
| 465   | 470 | 475 | 480  |
| gca aag gag cta gaa gaa gag att acc tta cgg aaa agt gtg gaa tca |     |     | 1488 |
| Ala Lys Glu Leu Glu Glu Glu Ile Thr Leu Arg Lys Ser Val Glu Ser |     |     |      |
| 485   | 490 | 495 |      |
| aca tta aga cag ctg gaa aga gaa aag gcc ctt ctt cag cac aaa aat |     |     | 1536 |
| Thr Leu Arg Gln Leu Glu Arg Glu Lys Ala Leu Leu Gln His Lys Asn |     |     |      |
| 500   | 505 | 510 |      |
| gca gag tat cag cgg aaa gct gat cat gaa gcc gac aag aag cgg aac |     |     | 1584 |
| Ala Glu Tyr Gln Arg Lys Ala Asp His Glu Ala Asp Lys Lys Arg Asn |     |     |      |
| 515   | 520 | 525 |      |
| ttg gaa aat gat gtt aac agc tta aaa gat caa ctt gaa gat ctg aag |     |     | 1632 |
| Leu Glu Asn Asp Val Asn Ser Leu Lys Asp Gln Leu Glu Asp Leu Lys |     |     |      |
| 530   | 535 | 540 |      |
| aaa agg aac cag agc tct cag ata tcc act gag aag gtc aat cag ctc |     |     | 1680 |
| Lys Arg Asn Gln Ser Ser Gln Ile Ser Thr Glu Lys Val Asn Gln Leu |     |     |      |
| 545   | 550 | 555 | 560  |
| cag aaa caa ctg gat gaa gct aat gct ttg ctg aga aca gag tct gat |     |     | 1728 |
| Gln Lys Gln Leu Asp Glu Ala Asn Ala Leu Leu Arg Thr Glu Ser Asp |     |     |      |
| 565   | 570 | 575 |      |
| act gca gca cgg tta aga aaa acc cag gca gaa agt tcc aaa cag att |     |     | 1776 |

|   |      |
|---|------|
| Thr Ala Ala Arg Leu Arg Lys Thr Gln Ala Glu Ser Ser Lys Gln Ile |      |
| 580   | 585  |
|   | 590  |
| cag cag ctg gaa tct aac aat aga gat cta caa gat aaa aac tgc ctg | 1824 |
| Gln Gln Leu Glu Ser Asn Asn Arg Asp Leu Gln Asp Lys Asn Cys Leu |      |
| 595   | 600  |
|   | 605  |
| ctt gag act gcc aag tta aaa ctt gaa aag gaa ttt atc aat ctt cag | 1872 |
| Leu Glu Thr Ala Lys Leu Lys Leu Glu Lys Glu Phe Ile Asn Leu Gln |      |
| 610   | 615  |
|   | 620  |
| tca gct tta gaa tct gaa aga agg gac cgg acc cat gga tca gag ata | 1920 |
| Ser Ala Leu Glu Ser Glu Arg Arg Asp Arg Thr His Gly Ser Glu Ile |      |
| 625   | 630  |
|   | 635  |
|   | 640  |
| att aat gat tta caa ggt aga ata tct ggg ttg gaa gaa gat ttg aag | 1968 |
| Ile Asn Asp Leu Gln Gly Arg Ile Ser Gly Leu Glu Glu Asp Leu Lys |      |
| 645   | 650  |
|   | 655  |
| act ggc aaa gcc tta cta gca aaa gta gag ctg gag aag aga cag ctg | 2016 |
| Thr Gly Lys Ala Leu Leu Ala Lys Val Glu Leu Glu Lys Arg Gln Leu |      |
| 660   | 665  |
|   | 670  |
| cag gag aag ctc act gac tta gag aag gaa aaa agc aac atg gaa ata | 2064 |
| Gln Glu Lys Leu Thr Asp Leu Glu Lys Glu Lys Ser Asn Met Glu Ile |      |
| 675   | 680  |
|   | 685  |
| gat atg aca tat caa ctg aaa gtt ata cag cag agt tta gaa caa gaa | 2112 |
| Asp Met Thr Tyr Gln Leu Lys Val Ile Gln Gln Ser Leu Glu Gln Glu |      |
| 690   | 695  |
|   | 700  |
| gaa gct gaa cac aag acc aca aaa gca cgg cta gcg gat aaa aat aag | 2160 |
| Glu Ala Glu His Lys Thr Thr Lys Ala Arg Leu Ala Asp Lys Asn Lys |      |
| 705   | 710  |
|   | 715  |
|   | 720  |
| atc tat gaa tcc att gaa gaa gct aaa tca gaa gcc atg aaa gaa atg | 2208 |
| Ile Tyr Glu Ser Ile Glu Glu Ala Lys Ser Glu Ala Met Lys Glu Met |      |
| 725   | 730  |
|   | 735  |

|   |      |
|---|------|
| gag aag aag ctg ttg gaa gag agg tct tta aag cag aaa gtg gag aac | 2256 |
| Glu Lys Lys Leu Leu Glu Glu Arg Ser Leu Lys Gln Lys Val Glu Asn |      |
| 740 745 750   |      |
| ctg ctc ctg gaa gcc gag aaa aga tgc tct ata ttg gac tgt gac ctc | 2304 |
| Leu Leu Leu Glu Ala Glu Lys Arg Cys Ser Ile Leu Asp Cys Asp Leu |      |
| 755 760 765   |      |
| aaa cag tct cag cag aag cta aat gag ctg ctg aag cag aaa gat gtg | 2352 |
| Lys Gln Ser Gln Gln Lys Leu Asn Glu Leu Leu Lys Gln Lys Asp Val |      |
| 770 775 780   |      |
| ctg aac gag gat gtt aga aat ttg aca tta aaa ata gag cag gaa act | 2400 |
| Leu Asn Glu Asp Val Arg Asn Leu Thr Leu Lys Ile Glu Gln Glu Thr |      |
| 785 790 795 800   |      |
| cag aag cgt tgt ctt atg caa aat gac ctg aag atg cag acc caa caa | 2448 |
| Gln Lys Arg Cys Leu Met Gln Asn Asp Leu Lys Met Gln Thr Gln Gln |      |
| 805 810 815   |      |
| gtt aac acc cta aaa atg tca gaa aag caa ata aaa caa gaa aat aat | 2496 |
| Val Asn Thr Leu Lys Met Ser Glu Lys Gln Ile Lys Gln Glu Asn Asn |      |
| 820 825 830   |      |
| cat ctt atg gaa atg aaa atg aac ttg gaa aag caa aat act gaa ctt | 2544 |
| His Leu Met Glu Met Lys Met Asn Leu Glu Lys Gln Asn Thr Glu Leu |      |
| 835 840 845   |      |
| cga aaa gag cgg cag gat gca gat ggg cag atg aag gaa ctg caa gac | 2592 |
| Arg Lys Glu Arg Gln Asp Ala Asp Gly Gln Met Lys Glu Leu Gln Asp |      |
| 850 855 860   |      |
| caa ctt gaa gca gag cag tat ttc tca acc ctc tat aaa aca caa gtt | 2640 |
| Gln Leu Glu Ala Glu Gln Tyr Phe Ser Thr Leu Tyr Lys Thr Gln Val |      |
| 865 870 875 880   |      |
| aga gaa ctt aaa gaa gaa aat gaa gag aag aca aaa ctt tgt aaa gag | 2688 |
| Arg Glu Leu Lys Glu Glu Asn Glu Glu Lys Thr Lys Leu Cys Lys Glu |      |

|   |      |      |      |
|---|------|------|------|
| 885   | 890  | 895  |      |
| ttg caa cag aag aag cag gat tta cag gat gaa aga gac tct ttg gct |      |      | 2736 |
| Leu Gln Gln Lys Lys Gln Asp Leu Gln Asp Glu Arg Asp Ser Leu Ala |      |      |      |
| 900   | 905  | 910  |      |
| gcc cag ctg gaa att acc ctt acc aaa gca gat tct gag cag ctg gct |      |      | 2784 |
| Ala Gln Leu Glu Ile Thr Leu Thr Lys Ala Asp Ser Glu Gln Leu Ala |      |      |      |
| 915   | 920  | 925  |      |
| cgt tcc att gct gaa gaa caa tac tct gat ttg gaa aaa gag aag atc |      |      | 2832 |
| Arg Ser Ile Ala Glu Glu Gln Tyr Ser Asp Leu Glu Lys Glu Lys Ile |      |      |      |
| 930   | 935  | 940  |      |
| atg aaa gag ctg gag atc aaa gag atg atg gct aga cac aaa caa gaa |      |      | 2880 |
| Met Lys Glu Leu Glu Ile Lys Glu Met Met Ala Arg His Lys Gln Glu |      |      |      |
| 945   | 950  | 955  | 960  |
| ctt act gaa aag gat act aca att gca tct ctt gaa gaa aca aat agg |      |      | 2928 |
| Leu Thr Glu Lys Asp Thr Thr Ile Ala Ser Leu Glu Glu Thr Asn Arg |      |      |      |
| 965   | 970  | 975  |      |
| aca cta act agc gat gtt gca aat ctt gca aat gag aaa gaa gaa tta |      |      | 2976 |
| Thr Leu Thr Ser Asp Val Ala Asn Leu Ala Asn Glu Lys Glu Glu Leu |      |      |      |
| 980   | 985  | 990  |      |
| aac aac aag ctg aaa gat agc caa gaa caa ctg tcc aag ttg aaa gat |      |      | 3024 |
| Asn Asn Lys Leu Lys Asp Ser Gln Glu Gln Leu Ser Lys Leu Lys Asp |      |      |      |
| 995   | 1000 | 1005 |      |
| gaa gag atg agt gca gca gct att aaa gca cag ttt gag aag cag ctt |      |      | 3072 |
| Glu Glu Met Ser Ala Ala Ala Ile Lys Ala Gln Phe Glu Lys Gln Leu |      |      |      |
| 1010  | 1015 | 1020 |      |
| ctg aat gag aga act ctc aag act caa gct gtg aat aag ttg gcg gag |      |      | 3120 |
| Leu Asn Glu Arg Thr Leu Lys Thr Gln Ala Val Asn Lys Leu Ala Glu |      |      |      |
| 1025  | 1030 | 1035 | 1040 |
| atc atg aat cga aaa gaa cct gtc aag cgt ggt agt gac aca gat gtg |      |      | 3168 |



|   |      |
|---|------|
| Ile Met Asn Arg Lys Glu Pro Val Lys Arg Gly Ser Asp Thr Asp Val |      |
| 1045  | 1050 |
| 1055  |      |
| cga aga aaa gag aag gaa aac aga aag cta cat atg gag ctt aag tct | 3216 |
| Arg Arg Lys Glu Lys Glu Asn Arg Lys Leu His Met Glu Leu Lys Ser |      |
| 1060  | 1065 |
| 1070  |      |
| gaa cgt gaa aaa ttg aca caa cag atg atc aaa tat cag aaa gaa ctg | 3264 |
| Glu Arg Glu Lys Leu Thr Gln Gln Met Ile Lys Tyr Gln Lys Glu Leu |      |
| 1075  | 1080 |
| 1085  |      |
| aat gaa atg cag gct caa ata gct gaa gag agc caa att cga ata gaa | 3312 |
| Asn Glu Met Gln Ala Gln Ile Ala Glu Glu Ser Gln Ile Arg Ile Glu |      |
| 1090  | 1095 |
| 1100  |      |
| ctc cag atg acc ctg gac agt aaa gac agc gac att gaa cag ctg cgg | 3360 |
| Leu Gln Met Thr Leu Asp Ser Lys Asp Ser Asp Ile Glu Gln Leu Arg |      |
| 1105  | 1110 |
| 1115  | 1120 |
| tca cag ctc cag gcc ttg cat att ggt atg gac agt tcc agt ata ggc | 3408 |
| Ser Gln Leu Gln Ala Leu His Ile Gly Met Asp Ser Ser Ser Ile Gly |      |
| 1125  | 1130 |
| 1135  |      |
| agt gga cca ggc gat gct gag cct gat gat gga ttt cca gaa tca aga | 3456 |
| Ser Gly Pro Gly Asp Ala Glu Pro Asp Asp Gly Phe Pro Glu Ser Arg |      |
| 1140  | 1145 |
| 1150  |      |
| tta gaa gga tgg ttg tca ttg cct gtg cgc aac aac act aaa aag ttt | 3504 |
| Leu Glu Gly Trp Leu Ser Leu Pro Val Arg Asn Asn Thr Lys Lys Phe |      |
| 1155  | 1160 |
| 1165  |      |
| gga tgg gtt aaa aag tat gtg att gta agc agc aag aag att ctt ttt | 3552 |
| Gly Trp Val Lys Lys Tyr Val Ile Val Ser Ser Lys Lys Ile Leu Phe |      |
| 1170  | 1175 |
| 1180  |      |
| tat gac agt gaa caa gat aaa gag cag tcc aac cct tac atg gtg tta | 3600 |
| Tyr Asp Ser Glu Gln Asp Lys Glu Gln Ser Asn Pro Tyr Met Val Leu |      |
| 1185  | 1190 |
| 1195  | 1200 |

gac ata gac aag cta ttt cac gtc cga cct gtt acc cag aca gat gta 3648  
 Asp Ile Asp Lys Leu Phe His Val Arg Pro Val Thr Gln Thr Asp Val  
 1205 1210 1215  
 tac aga gca gat gct aaa gaa att cca agg ata ttt cag att cta tat 3696  
 Tyr Arg Ala Asp Ala Lys Glu Ile Pro Arg Ile Phe Gln Ile Leu Tyr  
 1220 1225 1230  
 gcc aat gaa gga gaa agt aag aag gaa cca gag ttt cca gtg gaa cca 3744  
 Ala Asn Glu Gly Glu Ser Lys Lys Glu Pro Glu Phe Pro Val Glu Pro  
 1235 1240 1245  
 gtg gga gaa aaa tct aat tat att tgt cac aaa gga cat gag ttt att 3792  
 Val Gly Glu Lys Ser Asn Tyr Ile Cys His Lys Gly His Glu Phe Ile  
 1250 1255 1260  
 cct act ctt tat cac ttc cca acc aac tgt gag gca tgt atg aag ccg 3840  
 Pro Thr Leu Tyr His Phe Pro Thr Asn Cys Glu Ala Cys Met Lys Pro  
 1265 1270 1275 1280  
 ctg tgg cac atg ttt aag cct cct cct gct cta gag tgc cgt agg tgc 3888  
 Leu Trp His Met Phe Lys Pro Pro Pro Ala Leu Glu Cys Arg Arg Cys  
 1285 1290 1295  
 cac att aaa tgt cat aaa gat cac atg gac aag aag gaa gag att ata 3936  
 His Ile Lys Cys His Lys Asp His Met Asp Lys Lys Glu Glu Ile Ile  
 1300 1305 1310  
 gcg ccc tgc aaa gtt tat tat gat ata tcg tcg gca aag aat cta ttg 3984  
 Ala Pro Cys Lys Val Tyr Tyr Asp Ile Ser Ser Ala Lys Asn Leu Leu  
 1315 1320 1325  
 tta tta gca aat tca aca gaa gaa cag cag aaa tgg gtt agt cgg ttg 4032  
 Leu Leu Ala Asn Ser Thr Glu Glu Gln Gln Lys Trp Val Ser Arg Leu  
 1330 1335 1340  
 gtg aaa aag ata cct aaa aag cct cca gct cca gac cct ttt gcc cga 4080  
 Val Lys Lys Ile Pro Lys Lys Pro Pro Ala Pro Asp Pro Phe Ala Arg

|   |      |      |      |      |
|---|------|------|------|------|
| 1345  | 1350 | 1355 | 1360 |      |
| tca tcc cct aga act tca atg aaa ata caa caa aac cag tcc att cgg |      |      |      | 4128 |
| Ser Ser Pro Arg Thr Ser Met Lys Ile Gln Gln Asn Gln Ser Ile Arg |      |      |      |      |
|   | 1365 | 1370 | 1375 |      |
| cgg ccc agt cga cag ctt gct cca aac aag cca agc taa             |      |      |      | 4167 |
| Arg Pro Ser Arg Gln Leu Ala Pro Asn Lys Pro Ser                 |      |      |      |      |
| 1380  | 1385 |      |      |      |

&lt;210&gt; 993

&lt;211&gt; 1388

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 993

|   |  |  |  |
|---|--|--|--|
| Met Ser Arg Pro Pro Pro Thr Gly Lys Met Pro Gly Ala Pro Glu Ala |  |  |  |
| 1 5 10 15   |  |  |  |
| Ala Pro Gly Asp Gly Ala Gly Ala Gly Arg Gln Arg Lys Leu Glu Ala |  |  |  |
| 20 25 30  |  |  |  |
| Leu Ile Arg Asp Pro Arg Ser Pro Ile Asn Val Glu Ser Leu Leu Asp |  |  |  |
| 35 40 45  |  |  |  |
| Gly Leu Asn Ser Leu Val Leu Asp Leu Asp Phe Pro Ala Leu Arg Lys |  |  |  |
| 50 55 60  |  |  |  |
| Asn Lys Asn Ile Asp Asn Phe Leu Asn Arg Tyr Glu Lys Ile Val Lys |  |  |  |
| 65 70 75 80   |  |  |  |
| Lys Ile Arg Gly Leu Gln Met Lys Ala Glu Asp Tyr Asp Val Val Lys |  |  |  |
| 85 90 95  |  |  |  |
| Val Ile Gly Arg Gly Ala Phe Gly Glu Val Gln Leu Val Arg His Lys |  |  |  |
| 100 105 110   |  |  |  |
| Ala Ser Gln Lys Val Tyr Ala Met Lys Leu Leu Ser Lys Phe Glu Met |  |  |  |

|   |     |     |
|---|-----|-----|
| 115   | 120 | 125 |
| Ile Lys Arg Ser Asp Ser Ala Phe Phe Trp Glu Glu Arg Asp Ile Met |     |     |
| 130   | 135 | 140 |
| Ala Phe Ala Asn Ser Pro Trp Val Val Gln Leu Phe Cys Ala Phe Gln |     |     |
| 145   | 150 | 155 |
| Asp Asp Arg Tyr Leu Tyr Met Val Met Glu Tyr Met Pro Gly Gly Asp |     |     |
| 165   | 170 | 175 |
| Leu Val Asn Leu Met Ser Asn Tyr Asp Val Pro Glu Lys Trp Ala Lys |     |     |
| 180   | 185 | 190 |
| Phe Tyr Thr Ala Glu Val Val Leu Ala Leu Asp Ala Ile His Ser Met |     |     |
| 195   | 200 | 205 |
| Gly Leu Ile His Arg Asp Val Lys Pro Asp Asn Met Leu Leu Asp Lys |     |     |
| 210   | 215 | 220 |
| His Gly His Leu Lys Leu Ala Asp Phe Gly Thr Cys Met Lys Met Asp |     |     |
| 225   | 230 | 235 |
| Glu Thr Gly Met Val His Cys Asp Thr Ala Val Gly Thr Pro Asp Tyr |     |     |
| 245   | 250 | 255 |
| Ile Ser Pro Glu Val Leu Lys Ser Gln Gly Gly Asp Gly Tyr Tyr Gly |     |     |
| 260   | 265 | 270 |
| Arg Glu Cys Asp Trp Trp Ser Val Gly Val Phe Leu Phe Glu Met Leu |     |     |
| 275   | 280 | 285 |
| Val Gly Asp Thr Pro Phe Tyr Ala Asp Ser Leu Val Gly Thr Tyr Ser |     |     |
| 290   | 295 | 300 |
| Lys Ile Met Asp His Lys Asn Ser Leu Cys Phe Pro Glu Asp Thr Glu |     |     |
| 305   | 310 | 315 |
| Ile Ser Lys His Ala Lys Asn Leu Ile Cys Ala Phe Leu Thr Asp Arg |     |     |
| 325   | 330 | 335 |
| Glu Val Arg Leu Gly Arg Asn Gly Val Glu Glu Ile Lys Gln His Pro |     |     |
| 340   | 345 | 350 |

Phe Phe Lys Asn Asp Gln Trp Asn Trp Asp Asn Ile Arg Glu Thr Ala  
 355 360 365  
 Ala Pro Val Val Pro Glu Leu Ser Ser Asp Ile Asp Ser Ser Asn Phe  
 370 375 380  
 Asp Asp Ile Glu Asp Asp Lys Gly Asp Val Glu Thr Phe Pro Ile Pro  
 385 390 395 400  
 Lys Ala Phe Val Gly Asn Gln Leu Pro Phe Ile Gly Phe Thr Tyr Phe  
 405 410 415  
 Arg Glu Asn Leu Leu Leu Ser Asp Ser Pro Pro Cys Arg Glu Asn Asp  
 420 425 430  
 Ala Ile Gln Thr Arg Lys Ser Glu Glu Ser Gln Glu Ile Gln Lys Lys  
 435 440 445  
 Leu Tyr Ala Leu Glu Glu His Leu Ser Ser Glu Val Gln Ala Lys Glu  
 450 455 460  
 Glu Leu Glu Gln Lys Cys Lys Ser Ile Asn Thr Arg Leu Glu Lys Thr  
 465 470 475 480  
 Ala Lys Glu Leu Glu Glu Glu Ile Thr Leu Arg Lys Ser Val Glu Ser  
 485 490 495  
 Thr Leu Arg Gln Leu Glu Arg Glu Lys Ala Leu Leu Gln His Lys Asn  
 500 505 510  
 Ala Glu Tyr Gln Arg Lys Ala Asp His Glu Ala Asp Lys Lys Arg Asn  
 515 520 525  
 Leu Glu Asn Asp Val Asn Ser Leu Lys Asp Gln Leu Glu Asp Leu Lys  
 530 535 540  
 Lys Arg Asn Gln Ser Ser Gln Ile Ser Thr Glu Lys Val Asn Gln Leu  
 545 550 555 560  
 Gln Lys Gln Leu Asp Glu Ala Asn Ala Leu Leu Arg Thr Glu Ser Asp  
 565 570 575  
 Thr Ala Ala Arg Leu Arg Lys Thr Gln Ala Glu Ser Ser Lys Gln Ile

|   |     |     |
|---|-----|-----|
| 580   | 585 | 590 |
| Gln Gln Leu Glu Ser Asn Asn Arg Asp Leu Gln Asp Lys Asn Cys Leu |     |     |
| 595   | 600 | 605 |
| Leu Glu Thr Ala Lys Leu Lys Leu Glu Lys Glu Phe Ile Asn Leu Gln |     |     |
| 610   | 615 | 620 |
| Ser Ala Leu Glu Ser Glu Arg Arg Asp Arg Thr His Gly Ser Glu Ile |     |     |
| 625   | 630 | 635 |
| Ile Asn Asp Leu Gln Gly Arg Ile Ser Gly Leu Glu Glu Asp Leu Lys |     | 640 |
| 645   | 650 | 655 |
| Thr Gly Lys Ala Leu Leu Ala Lys Val Glu Leu Glu Lys Arg Gln Leu |     |     |
| 660   | 665 | 670 |
| Gln Glu Lys Leu Thr Asp Leu Glu Lys Glu Lys Ser Asn Met Glu Ile |     |     |
| 675   | 680 | 685 |
| Asp Met Thr Tyr Gln Leu Lys Val Ile Gln Gln Ser Leu Glu Gln Glu |     |     |
| 690   | 695 | 700 |
| Glu Ala Glu His Lys Thr Thr Lys Ala Arg Leu Ala Asp Lys Asn Lys |     |     |
| 705   | 710 | 715 |
| Ile Tyr Glu Ser Ile Glu Glu Ala Lys Ser Glu Ala Met Lys Glu Met |     | 720 |
| 725   | 730 | 735 |
| Glu Lys Lys Leu Leu Glu Glu Arg Ser Leu Lys Gln Lys Val Glu Asn |     |     |
| 740   | 745 | 750 |
| Leu Leu Leu Glu Ala Glu Lys Arg Cys Ser Ile Leu Asp Cys Asp Leu |     |     |
| 755   | 760 | 765 |
| Lys Gln Ser Gln Gln Lys Leu Asn Glu Leu Leu Lys Gln Lys Asp Val |     |     |
| 770   | 775 | 780 |
| Leu Asn Glu Asp Val Arg Asn Leu Thr Leu Lys Ile Glu Gln Glu Thr |     |     |
| 785   | 790 | 795 |
| Gln Lys Arg Cys Leu Met Gln Asn Asp Leu Lys Met Gln Thr Gln Gln |     | 800 |
| 805   | 810 | 815 |

Val Asn Thr Leu Lys Met Ser Glu Lys Gln Ile Lys Gln Glu Asn Asn  
 820 825 830  
 His Leu Met Glu Met Lys Met Asn Leu Glu Lys Gln Asn Thr Glu Leu  
 835 840 845  
 Arg Lys Glu Arg Gln Asp Ala Asp Gly Gln Met Lys Glu Leu Gln Asp  
 850 855 860  
 Gln Leu Glu Ala Glu Gln Tyr Phe Ser Thr Leu Tyr Lys Thr Gln Val  
 865 870 875 880  
 Arg Glu Leu Lys Glu Glu Asn Glu Glu Lys Thr Lys Leu Cys Lys Glu  
 885 890 895  
 Leu Gln Gln Lys Lys Gln Asp Leu Gln Asp Glu Arg Asp Ser Leu Ala  
 900 905 910  
 Ala Gln Leu Glu Ile Thr Leu Thr Lys Ala Asp Ser Glu Gln Leu Ala  
 915 920 925  
 Arg Ser Ile Ala Glu Glu Gln Tyr Ser Asp Leu Glu Lys Glu Lys Ile  
 930 935 940  
 Met Lys Glu Leu Glu Ile Lys Glu Met Met Ala Arg His Lys Gln Glu  
 945 950 955 960  
 Leu Thr Glu Lys Asp Thr Thr Ile Ala Ser Leu Glu Glu Thr Asn Arg  
 965 970 975  
 Thr Leu Thr Ser Asp Val Ala Asn Leu Ala Asn Glu Lys Glu Glu Leu  
 980 985 990  
 Asn Asn Lys Leu Lys Asp Ser Gln Glu Gln Leu Ser Lys Leu Lys Asp  
 995 1000 1005  
 Glu Glu Met Ser Ala Ala Ala Ile Lys Ala Gln Phe Glu Lys Gln Leu  
 1010 1015 1020  
 Leu Asn Glu Arg Thr Leu Lys Thr Gln Ala Val Asn Lys Leu Ala Glu  
 1025 1030 1035 1040  
 Ile Met Asn Arg Lys Glu Pro Val Lys Arg Gly Ser Asp Thr Asp Val

|   |      |      |
|---|------|------|
| 1045  | 1050 | 1055 |
| Arg Arg Lys Glu Lys Glu Asn Arg Lys Leu His Met Glu Leu Lys Ser |      |      |
| 1060  | 1065 | 1070 |
| Glu Arg Glu Lys Leu Thr Gln Gln Met Ile Lys Tyr Gln Lys Glu Leu |      |      |
| 1075  | 1080 | 1085 |
| Asn Glu Met Gln Ala Gln Ile Ala Glu Glu Ser Gln Ile Arg Ile Glu |      |      |
| 1090  | 1095 | 1100 |
| Leu Gln Met Thr Leu Asp Ser Lys Asp Ser Asp Ile Glu Gln Leu Arg |      |      |
| 1105  | 1110 | 1115 |
| Ser Gln Leu Gln Ala Leu His Ile Gly Met Asp Ser Ser Ser Ile Gly |      |      |
| 1125  | 1130 | 1135 |
| Ser Gly Pro Gly Asp Ala Glu Pro Asp Asp Gly Phe Pro Glu Ser Arg |      |      |
| 1140  | 1145 | 1150 |
| Leu Glu Gly Trp Leu Ser Leu Pro Val Arg Asn Asn Thr Lys Lys Phe |      |      |
| 1155  | 1160 | 1165 |
| Gly Trp Val Lys Lys Tyr Val Ile Val Ser Ser Lys Lys Ile Leu Phe |      |      |
| 1170  | 1175 | 1180 |
| Tyr Asp Ser Glu Gln Asp Lys Glu Gln Ser Asn Pro Tyr Met Val Leu |      |      |
| 1185  | 1190 | 1195 |
| Asp Ile Asp Lys Leu Phe His Val Arg Pro Val Thr Gln Thr Asp Val |      |      |
| 1205  | 1210 | 1215 |
| Tyr Arg Ala Asp Ala Lys Glu Ile Pro Arg Ile Phe Gln Ile Leu Tyr |      |      |
| 1220  | 1225 | 1230 |
| Ala Asn Glu Gly Glu Ser Lys Lys Glu Pro Glu Phe Pro Val Glu Pro |      |      |
| 1235  | 1240 | 1245 |
| Val Gly Glu Lys Ser Asn Tyr Ile Cys His Lys Gly His Glu Phe Ile |      |      |
| 1250  | 1255 | 1260 |
| Pro Thr Leu Tyr His Phe Pro Thr Asn Cys Glu Ala Cys Met Lys Pro |      |      |
| 1265  | 1270 | 1275 |
|   |      | 1280 |



Leu Trp His Met Phe Lys Pro Pro Pro Ala Leu Glu Cys Arg Arg Cys  
 1285 1290 1295

His Ile Lys Cys His Lys Asp His Met Asp Lys Lys Glu Glu Ile Ile  
 1300 1305 1310

Ala Pro Cys Lys Val Tyr Tyr Asp Ile Ser Ser Ala Lys Asn Leu Leu  
 1315 1320 1325

Leu Leu Ala Asn Ser Thr Glu Glu Gln Gln Lys Trp Val Ser Arg Leu  
 1330 1335 1340

Val Lys Lys Ile Pro Lys Lys Pro Pro Ala Pro Asp Pro Phe Ala Arg  
 345 1350 1355 1360

Ser Ser Pro Arg Thr Ser Met Lys Ile Gln Gln Asn Gln Ser Ile Arg  
 1365 1370 1375

Arg Pro Ser Arg Gln Leu Ala Pro Asn Lys Pro Ser  
 1380 1385

<210> 994

<211> 854

<212> DNA

<213> Mus musculus

<400> 994

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 aaacgagggg tcttatccct cattgacact ttgaaacaga agcggccggt cacagagact 180  
 ccctagcagc ccaggtctgg aggagtctga caccattacc tgaggatcaa gtagctacac 240  
 taaagaagcc gatacttggc ctccactca gttgccgatg ctttgtctcc agagatttta 300  
 tctttaacca gacagtgtta gacaagcatg tgacctcgtc ttgccgccac catgtgatat 360  
 aaagaggagc atgatttttt ctttcctgta agttacatca tgagcagcag aaggtcgtct 420  
 tcttgtaaatt attgtgaaca ggacttccga gcacacacac agaagaatgc ggccacaccc 480

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 gtttttcata acactgagcc tgttgggtga caaaacttgg ctgttggcgt cggtagagac 720  
 accagccacc gagctctctg acacatggac actgggtcac atctacagct atttgaggtg 780  
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<210> 995

<211> 186

<212> DNA

<213> Mus musculus

<400> 995

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 acccagcac ctccatgcag tcaggaaatg ttctcttctt ggttggtcac aggcctggag 180  
 cccatg 186

<210> 996

<211> 609

<212> DNA

<213> Mus musculus

<400> 996

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 gttggagaag ctaccgagac tgccttcacg tgccctgggtg agaagatgaa tgtatttgat 120  
 actgagctga aggggctttc taaaatagag cgtgcaaacg cctgcaactc ggtcataaag 180  
 cagctgatga agaaggagtt cactctggag ttttcacggg atagaaaatc aatgtccgtc 240

tattgtaccc caaacaagcc aagccggaca tccatgagca agatgtttgt gaagggggct 300  
 ccagaagggtg tcatcgatag gtgcacccac atccgagttg gaagtaccaa ggtcccccattg 360  
 actcctgggtg tcaaacagaa gattatgict gtcattcggg agtggggcag tggcagcgac 420  
 acgctacggt gccctggctct ggcaactcatg acaaccact gaagagagag gagatgcacc 480  
 tggaagactc tgctaacttc atcaaatacg agagcaacct gactttcgtc ggctgtgtgg 540  
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<211> 504

<212> DNA

<213> Mus musculus

<400> 997

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 agcgtgtagt cctaactgga gactggaaac atgggttctt ctcggtgaca gcagtgggag 180  
 ccaccaatgt gggctctatc cgtatccact ttgaccgaga cctgcacaca aacagcccca 240  
 ggtacagcaa gggctcctac aatgacctga gctttgtaac acatgccaac aaggagggca 300  
 tttccatgcg caagggtgag cccctggggg aagtccaacc tgggtccac catcgtgctc 360  
 atcttcgagg cacccaagga ctccaacttc aggtgaagg cagggcagaa gatccgcttt 420  
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<210> 998

<211> 443

<212> DNA

<213> Mus musculus

&lt;400&gt; 998

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acattgtgaa tattagctca ggctccttga atcacgctgc cagtaagaag ctcgacctgg 180  
aggcctgggt cccaggctcg ggtgccttcc gtgagttggt gtcctgttct aattgcacgg 240  
attaccaagc tcgccgcctg agaatccgat atgggcagac caagaagatg atggacaagg 300  
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tcttgagaa ctaccaggca gagaaggga tcgctgtgcc agagaagtg agggagttca 420  
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&lt;210&gt; 999

&lt;211&gt; 233

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 999

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aaatgtgagg aatgtgacaa agcctttctt tctactcgt ttcttaggag acacaaagca 120  
gttcatacta gagagaaacc ctacatgtgt gaaaagtgtg ggaaatgttt ttcttctttt 180  
acatccctga aaagtgaata aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 233

&lt;210&gt; 1000

&lt;211&gt; 3135

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (917).. (1921)

&lt;400&gt; 1000

ctgagtgtgc gagagacagc ctggcaggag agcgtcagg cagacagaca gacagacgga 60  
 cggacttggc caacccggtc ggccgcggac tccggactgt tcatccgitt gtcttcattt 120  
 tctcaccaac tgcttggatc cagcgcgccg ggctcctgca ccggtatitt ggggagcatt 180  
 tggagagtcc ctctcccgcc ctccacgga gaagaagctc acaagtccgg gcgctgctga 240  
 cagcatcgag agcggctccc gaccgcgcga ggaaataggc gagcggctac cggccagcaa 300  
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 tgcgccttaa ggctgccacc gagactgiaa agaaaaggga gaagaggaaac ctatactcat 420  
 accagttcgc acaggcggct gaagtgggc gagcgttagc cgcggctgcc tagcgtcccc 480  
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 accctgcgtt ccttgagcgc aactggggag gagggctcag ggggaagcac tgccgtctgg 780  
 agcgcacgct cctaaacaaa cttgtitaca gaagcaggga cgcgcgggta tcccccgct 840  
 tcccggcgcg ctgttgcgcc cccgaaactt ctgcgcacag cccaggctaa ccccgctga 900  
 agtgacggac cgttct atg act gca aag atg gaa acg acc ttc tac gac gat 952

Met Thr Ala Lys Met Glu Thr Thr Phe Tyr Asp Asp

1

5

10

gcc ctc aac gcc tcg ttc ctc cag tcc gag agc ggt gcc tac ggc tac 1000

Ala Leu Asn Ala Ser Phe Leu Gln Ser Glu Ser Gly Ala Tyr Gly Tyr

15

20

25

agt aac cct aag atc cta aaa cag agc atg acc ttg aac ctg gcc gac 1048

Ser Asn Pro Lys Ile Leu Lys Gln Ser Met Thr Leu Asn Leu Ala Asp

30

35

40

ccg gtg ggc agt ctg aag ccg cac ctc cgc gcc aag aac tcg gac ctt 1096

Pro Val Gly Ser Leu Lys Pro His Leu Arg Ala Lys Asn Ser Asp Leu

45

50

55

60

|   |      |
|---|------|
| ctc acg tcg ccc gac gtc ggg ctg ctc aag ctg gcg tcg ccg gag ctg | 1144 |
| Leu Thr Ser Pro Asp Val Gly Leu Leu Lys Leu Ala Ser Pro Glu Leu |      |
| 65 70 75  |      |
| gag cgc ctg atc atc cag tcc agc aat ggg cac atc acc act aca ccg | 1192 |
| Glu Arg Leu Ile Ile Gln Ser Ser Asn Gly His Ile Thr Thr Thr Pro |      |
| 80 85 90  |      |
| acc ccc acc cag ttc ttg tgc ccc aag aac gtg acc gac gag cag gag | 1240 |
| Thr Pro Thr Gln Phe Leu Cys Pro Lys Asn Val Thr Asp Glu Gln Glu |      |
| 95 100 105  |      |
| ggc ttc gcc gag ggc ttc gtg cgc gcc ctg gct gaa ctg cat agc cag | 1288 |
| Gly Phe Ala Glu Gly Phe Val Arg Ala Leu Ala Glu Leu His Ser Gln |      |
| 110 115 120   |      |
| aac acg ctt ccc agt gtc acc tcc gcg gca cag ccg gtc agc ggg gcg | 1336 |
| Asn Thr Leu Pro Ser Val Thr Ser Ala Ala Gln Pro Val Ser Gly Ala |      |
| 125 130 135 140   |      |
| ggc atg gtg gct ccc gcg gtg gcc tca gta gca ggc gct ggc ggc ggt | 1384 |
| Gly Met Val Ala Pro Ala Val Ala Ser Val Ala Gly Ala Gly Gly Gly |      |
| 145 150 155   |      |
| ggt ggc tac agc gcc agc ctg cac agt gag cct ccg gtc tac gcc aac | 1432 |
| Gly Gly Tyr Ser Ala Ser Leu His Ser Glu Pro Pro Val Tyr Ala Asn |      |
| 160 165 170   |      |
| ctc agc aac ttc aac ccg ggt gcg ctg agc agc ggc ggt ggg gcg ccc | 1480 |
| Leu Ser Asn Phe Asn Pro Gly Ala Leu Ser Ser Gly Gly Gly Ala Pro |      |
| 175 180 185   |      |
| tcc tat ggc gcg gcc ggg ctg gcc ttt ccc tcg cag ccg cag cag cag | 1528 |
| Ser Tyr Gly Ala Ala Gly Leu Ala Phe Pro Ser Gln Pro Gln Gln Gln |      |
| 190 195 200   |      |
| cag cag ccg cct cag ccg ccg cac cac ttg ccc caa cag atc ccg gtg | 1576 |
| Gln Gln Pro Pro Gln Pro Pro His His Leu Pro Gln Gln Ile Pro Val |      |

205                      210                      215                      220  
 cag cac ccg cgg ctg caa gcc ctg aag gaa gag ccg cag acc gtg ccg 1624  
 Gln His Pro Arg Leu Gln Ala Leu Lys Glu Glu Pro Gln Thr Val Pro  
                     225                      230                      235  
 gag atg ccg gga gag acg ccg ccc ctg tcc cct atc gac atg gag tct 1672  
 Glu Met Pro Gly Glu Thr Pro Pro Leu Ser Pro Ile Asp Met Glu Ser  
                     240                      245                      250  
 cag gag ccg atc aag gca gag agg aag cgc atg agg aac cgc att gcc 1720  
 Gln Glu Arg Ile Lys Ala Glu Arg Lys Arg Met Arg Asn Arg Ile Ala  
                     255                      260                      265  
 gcc tcc aag tgc cgg aaa agg aag ctg gag ccg atc gct ccg cta gag 1768  
 Ala Ser Lys Cys Arg Lys Arg Lys Leu Glu Arg Ile Ala Arg Leu Glu  
                     270                      275                      280  
 gaa aaa gtg aaa acc ttg aaa gcg caa aac tcc gag ctg gca tcc acg 1816  
 Glu Lys Val Lys Thr Leu Lys Ala Gln Asn Ser Glu Leu Ala Ser Thr  
 285                      290                      295                      300  
 gcc aac atg ctc agg gaa cag gtg gca cag ctt aag cag aaa gtc atg 1864  
 Ala Asn Met Leu Arg Glu Gln Val Ala Gln Leu Lys Gln Lys Val Met  
                     305                      310                      315  
 aac cac gtt aac agt ggg tgc caa ctc atg cta acg cag cag ttg caa 1912  
 Asn His Val Asn Ser Gly Cys Gln Leu Met Leu Thr Gln Gln Leu Gln  
                     320                      325                      330  
 acg ttt tga gaacagactg tcagggtga ggggcaatgg aagaaaaaaa 1961  
 Thr Phe  
                     335  
 ataacagaga caaacttgag aacttgactg gttgcgacag agaaaaaaaa agtgtccgag 2021  
 tactgaagcc aagggtacac aagatggact gggttgcgac ctgacggcgc cccagtggtg 2081  
 ctggagtggg aaggacgtgg cgcgcctggc tttggcgtgg agccagagag cagcggccta 2141  
 ttggccggca gactttgcgg acgggtgtg cccgcgcgcg accagaacga tggacttttc 2201

gttaacattg accaagaact gcatggacct aacattcgat ctcatcagc attaaagggg 2261  
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<210> 1001

<211> 334

<212> PRT

<213> Mus musculus

<400> 1001

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Ala | Lys | Met | Glu | Thr | Thr | Phe | Tyr | Asp | Asp | Ala | Leu | Asn | Ala |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Ser | Phe | Leu | Gln | Ser | Glu | Ser | Gly | Ala | Tyr | Gly | Tyr | Ser | Asn | Pro | Lys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Ile | Leu | Lys | Gln | Ser | Met | Thr | Leu | Asn | Leu | Ala | Asp | Pro | Val | Gly | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |



Leu Lys Pro His Leu Arg Ala Lys Asn Ser Asp Leu Leu Thr Ser Pro  
 50 55 60  
 Asp Val Gly Leu Leu Lys Leu Ala Ser Pro Glu Leu Glu Arg Leu Ile  
 65 70 75 80  
 Ile Gln Ser Ser Asn Gly His Ile Thr Thr Thr Pro Thr Pro Thr Gln  
 85 90 95  
 Phe Leu Cys Pro Lys Asn Val Thr Asp Glu Gln Glu Gly Phe Ala Glu  
 100 105 110  
 Gly Phe Val Arg Ala Leu Ala Glu Leu His Ser Gln Asn Thr Leu Pro  
 115 120 125  
 Ser Val Thr Ser Ala Ala Gln Pro Val Ser Gly Ala Gly Met Val Ala  
 130 135 140  
 Pro Ala Val Ala Ser Val Ala Gly Ala Gly Gly Gly Gly Gly Tyr Ser  
 145 150 155 160  
 Ala Ser Leu His Ser Glu Pro Pro Val Tyr Ala Asn Leu Ser Asn Phe  
 165 170 175  
 Asn Pro Gly Ala Leu Ser Ser Gly Gly Gly Ala Pro Ser Tyr Gly Ala  
 180 185 190  
 Ala Gly Leu Ala Phe Pro Ser Gln Pro Gln Gln Gln Gln Gln Pro Pro  
 195 200 205  
 Gln Pro Pro His His Leu Pro Gln Gln Ile Pro Val Gln His Pro Arg  
 210 215 220  
 Leu Gln Ala Leu Lys Glu Glu Pro Gln Thr Val Pro Glu Met Pro Gly  
 225 230 235 240  
 Glu Thr Pro Pro Leu Ser Pro Ile Asp Met Glu Ser Gln Glu Arg Ile  
 245 250 255  
 Lys Ala Glu Arg Lys Arg Met Arg Asn Arg Ile Ala Ala Ser Lys Cys  
 260 265 270  
 Arg Lys Arg Lys Leu Glu Arg Ile Ala Arg Leu Glu Glu Lys Val Lys

|   |     |     |
|---|-----|-----|
| 275   | 280 | 285 |
| Thr Leu Lys Ala Gln Asn Ser Glu Leu Ala Ser Thr Ala Asn Met Leu |     |     |
| 290   | 295 | 300 |
| Arg Glu Gln Val Ala Gln Leu Lys Gln Lys Val Met Asn His Val Asn |     |     |
| 305   | 310 | 315 |
| Ser Gly Cys Gln Leu Met Leu Thr Gln Gln Leu Gln Thr Phe         |     | 320 |
| 325   | 330 |     |

&lt;210&gt; 1002

&lt;211&gt; 4494

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1678).. (3279)

&lt;400&gt; 1002

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 gactacggga gggggaacgt ggaggcgacg gaagagcccg tcgcgcctgg ggctcccgaa 180  
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 gcttggggtc gccagactgc ccaaagccaa gtccccctct ttaggacagg gcagggttcg 300  
 tgcccgacca gtccctggcc tggataaaag tcaggaatgt gtctaaccat cacaagaacc 360  
 aacagatcct ggcggggact taggactgac ctagaacaat cagggttcg caatccaggt 420  
 cccaaagggtg ggatccitcaa ccgcaggacg gagggaatag cctttcgatt ctgggtgggtg 480  
 cattggaagc ccagggtctt aaaaccccca acctactgac tggtagccga gtagtcaccc 540  
 gactgctagc taggcagtgt cccaagaacc agtagccaaa tgtcttggcc tcagttttcc 600  
 cggtagacacc tggaaagtga ccctgccatt agtagaggct caggtcaggg cccgcctct 660

cctggggggc ctcgtcccta gcccggcctg cgcctcctcc tctccgcagg ctgcctccca 720  
 cggccccga ggtggggcggg tgagcccagg atgacggctg tagaaccg gcctgactcg 780  
 ccctcgcccc cgcgcccgggc ctgggccttc ctagcccagc tcgcaccg ggcccgctcg 840  
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 atg gca gcg gcc aag gcc gag atg caa ttg atg tct ccg ctg cag atc 1725  
 Met Ala Ala Ala Lys Ala Glu Met Gln Leu Met Ser Pro Leu Gln Ile  
 1 5 10 15  
 tct gac ccg ttc ggc tcc ttt cct cac tca ccc acc atg gac aac tac 1773  
 Ser Asp Pro Phe Gly Ser Phe Pro His Ser Pro Thr Met Asp Asn Tyr  
 20 25 30  
 ccc aaa ctg gag gag atg atg ctg ctg agc aac ggg gct ccc cag ttc 1821  
 Pro Lys Leu Glu Glu Met Met Leu Leu Ser Asn Gly Ala Pro Gln Phe  
 35 40 45  
 ctc ggt gct gcc gga acc cca gag ggc agc ggc ggt aat agc agc agc 1869  
 Leu Gly Ala Ala Gly Thr Pro Glu Gly Ser Gly Gly Asn Ser Ser Ser  
 50 55 60

agc acc agc agc ggg ggc ggt ggt ggg ggc ggc agc aac agc ggc agc 1917  
 Ser Thr Ser Ser Gly Gly Gly Gly Gly Gly Gly Ser Asn Ser Gly Ser  
 65 70 75 80  
 agc gcc ttc aat cct caa ggg gag ccg agc gaa caa ccc tat gag cac 1965  
 Ser Ala Phe Asn Pro Gln Gly Glu Pro Ser Glu Gln Pro Tyr Glu His  
 85 90 95  
 ctg acc aca gag tcc ttt tct gac atc gct ctg aat aat gag aag gcg 2013  
 Leu Thr Thr Glu Ser Phe Ser Asp Ile Ala Leu Asn Asn Glu Lys Ala  
 100 105 110  
 atg gtg gag acg agt tat ccc agc caa acg act cgg ttg cct ccc atc 2061  
 Met Val Glu Thr Ser Tyr Pro Ser Gln Thr Thr Arg Leu Pro Pro Ile  
 115 120 125  
 acc tat act ggc cgc ttc tcc ctg gag ccc gca ccc aac agt ggc aac 2109  
 Thr Tyr Thr Gly Arg Phe Ser Leu Glu Pro Ala Pro Asn Ser Gly Asn  
 130 135 140  
 act ttg tgg cct gaa ccc ctt ttc agc cta gtc agt ggc ctc gtg agc 2157  
 Thr Leu Trp Pro Glu Pro Leu Phe Ser Leu Val Ser Gly Leu Val Ser  
 145 150 155 160  
 atg acc aat cct ccg acc tct tca tcc tcg gcg cct tct cca gct gct 2205  
 Met Thr Asn Pro Pro Thr Ser Ser Ser Ser Ala Pro Ser Pro Ala Ala  
 165 170 175  
 tca tcg tct tcc tct gcc tcc cag agc ccg ccc ctg agc tgt gcc gtg 2253  
 Ser Ser Ser Ser Ser Ala Ser Gln Ser Pro Pro Leu Ser Cys Ala Val  
 180 185 190  
 ccg tcc aac gac agc agt ccc atc tac tcg gct gcg ccc acc ttt cct 2301  
 Pro Ser Asn Asp Ser Ser Pro Ile Tyr Ser Ala Ala Pro Thr Phe Pro  
 195 200 205  
 act ccc aac act gac att ttt cct gag ccc caa agc cag gcc ttt cct 2349  
 Thr Pro Asn Thr Asp Ile Phe Pro Glu Pro Gln Ser Gln Ala Phe Pro

|   |     |     |      |
|---|-----|-----|------|
| 210   | 215 | 220 |      |
| ggc tgc gca ggc aca gcc ttg cag tac ccg cct cct gcc tac cct gcc |     |     | 2397 |
| Gly Ser Ala Gly Thr Ala Leu Gln Tyr Pro Pro Pro Ala Tyr Pro Ala |     |     |      |
| 225   | 230 | 235 | 240  |
| acc aaa ggt ggt ttc cag gtt ccc atg atc cct gac tat ctg ttt cca |     |     | 2445 |
| Thr Lys Gly Gly Phe Gln Val Pro Met Ile Pro Asp Tyr Leu Phe Pro |     |     |      |
| 245   | 250 | 255 |      |
| caa caa cag gga gac ctg agc ctg ggc acc cca gac cag aag ccc ttc |     |     | 2493 |
| Gln Gln Gln Gly Asp Leu Ser Leu Gly Thr Pro Asp Gln Lys Pro Phe |     |     |      |
| 260   | 265 | 270 |      |
| cag ggt ctg gag aac cgt acc cag cag cct tgc ctc act cca cta tcc |     |     | 2541 |
| Gln Gly Leu Glu Asn Arg Thr Gln Gln Pro Ser Leu Thr Pro Leu Ser |     |     |      |
| 275   | 280 | 285 |      |
| act att aaa gcc ttc gcc act cag tgc ggc tcc cag gac tta aag gct |     |     | 2589 |
| Thr Ile Lys Ala Phe Ala Thr Gln Ser Gly Ser Gln Asp Leu Lys Ala |     |     |      |
| 290   | 295 | 300 |      |
| ctt aat acc acc tac caa tcc cag ctc atc aaa ccc agc cgc atg cgc |     |     | 2637 |
| Leu Asn Thr Thr Tyr Gln Ser Gln Leu Ile Lys Pro Ser Arg Met Arg |     |     |      |
| 305   | 310 | 315 | 320  |
| aag tac ccc aac cgg ccc agc aag aca ccc ccc cat gaa cgc cca tat |     |     | 2685 |
| Lys Tyr Pro Asn Arg Pro Ser Lys Thr Pro Pro His Glu Arg Pro Tyr |     |     |      |
| 325   | 330 | 335 |      |
| gct tgc cct gtc gag tcc tgc gat cgc cgc ttt tct cgc tgc gat gag |     |     | 2733 |
| Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Arg Ser Asp Glu |     |     |      |
| 340   | 345 | 350 |      |
| ctt acc cgc cat atc cgc atc cac aca ggc cag aag ccc ttc cag tgt |     |     | 2781 |
| Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys Pro Phe Gln Cys |     |     |      |
| 355   | 360 | 365 |      |
| cga atc tgc atg cgt aac ttc agt cgt agt gac cac ctt acc acc cac |     |     | 2829 |

|   |      |
|---|------|
| Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His Leu Thr Thr His |      |
| 370   | 375  |
| 380   |      |
| atc cgc acc cac aca ggc gag aag cct ttt gcc tgt gac att tgt ggg | 2877 |
| Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly |      |
| 385   | 390  |
| 395   | 400  |
| agg aag ttt gcc agg agt gat gaa cgc aag agg cat acc aaa atc cat | 2925 |
| Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His Thr Lys Ile His |      |
| 405   | 410  |
| 415   |      |
| tta aga cag aag gac aag aaa gca gac aaa agt gtg gtg gcc tcc ccg | 2973 |
| Leu Arg Gln Lys Asp Lys Lys Ala Asp Lys Ser Val Val Ala Ser Pro |      |
| 420   | 425  |
| 430   |      |
| gct gcc tct tca ctc tct tct tac cca tcc cca gtg gct acc tcc tac | 3021 |
| Ala Ala Ser Ser Leu Ser Ser Tyr Pro Ser Pro Val Ala Thr Ser Tyr |      |
| 435   | 440  |
| 445   |      |
| cca tcc cct gcc acc acc tca ttc cca tcc cct gtg ccc act tcc tac | 3069 |
| Pro Ser Pro Ala Thr Thr Ser Phe Pro Ser Pro Val Pro Thr Ser Tyr |      |
| 450   | 455  |
| 460   |      |
| tcc tct cct ggc tcc tcc acc tac cca tct cct gcg cac agt ggc ttc | 3117 |
| Ser Ser Pro Gly Ser Ser Thr Tyr Pro Ser Pro Ala His Ser Gly Phe |      |
| 465   | 470  |
| 475   | 480  |
| ccg tcg ccg tca gtg gcc acc acc ttt gcc tcc gtt cca cct gct ttc | 3165 |
| Pro Ser Pro Ser Val Ala Thr Thr Phe Ala Ser Val Pro Pro Ala Phe |      |
| 485   | 490  |
| 495   |      |
| ccc acc cag gtc agc agc ttc ccg tct gcg ggc gtc agc agc tcc ttc | 3213 |
| Pro Thr Gln Val Ser Ser Phe Pro Ser Ala Gly Val Ser Ser Ser Phe |      |
| 500   | 505  |
| 510   |      |
| agc acc tca act ggt ctt tca gac atg aca gcg acc ttt tct ccc agg | 3261 |
| Ser Thr Ser Thr Gly Leu Ser Asp Met Thr Ala Thr Phe Ser Pro Arg |      |
| 515   | 520  |
| 525   |      |

aca att gaa att tgc taa aggggaataaa agaaagcaaa gggagaggca 3309

Thr Ile Glu Ile Cys

530

ggaaagacat aaaagcacag gaggggaagag atggccgcaa gagggggccac ctcttaggtc 3369

agatggaaga tctcagagcc aagtccttct actcacgagt agaaggaccg ttggccaaca 3429

gccctttcac ttaccatccc tgcctccccc gtccgtttcc ccctttgact tcagctgcct 3489

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aatttgcata ctctatttga ttatttggag ttaaactctc actttggggg aggggggagc 3789

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aaatttaaac aaaaatctga actctcaaaa gtctattttt ctaaactgaa aatgtaaaatt 4269

tatacatcta ttcaggagtt ggagtgttgt ggttacctac tgagtaggct gcagtttttg 4329

tatgttatga acatgaagtt cattattttg tggttttatt ttactttgta cttgtgtttg 4389

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<210> 1003

<211> 533

<212> PRT

<213> Mus musculus

&lt;400&gt; 1003

Met Ala Ala Ala Lys Ala Glu Met Gln Leu Met Ser Pro Leu Gln Ile  
 1 5 10 15  
 Ser Asp Pro Phe Gly Ser Phe Pro His Ser Pro Thr Met Asp Asn Tyr  
 20 25 30  
 Pro Lys Leu Glu Glu Met Met Leu Leu Ser Asn Gly Ala Pro Gln Phe  
 35 40 45  
 Leu Gly Ala Ala Gly Thr Pro Glu Gly Ser Gly Gly Asn Ser Ser Ser  
 50 55 60  
 Ser Thr Ser Ser Gly Gly Gly Gly Gly Gly Gly Ser Asn Ser Gly Ser  
 65 70 75 80  
 Ser Ala Phe Asn Pro Gln Gly Glu Pro Ser Glu Gln Pro Tyr Glu His  
 85 90 95  
 Leu Thr Thr Glu Ser Phe Ser Asp Ile Ala Leu Asn Asn Glu Lys Ala  
 100 105 110  
 Met Val Glu Thr Ser Tyr Pro Ser Gln Thr Thr Arg Leu Pro Pro Ile  
 115 120 125  
 Thr Tyr Thr Gly Arg Phe Ser Leu Glu Pro Ala Pro Asn Ser Gly Asn  
 130 135 140  
 Thr Leu Trp Pro Glu Pro Leu Phe Ser Leu Val Ser Gly Leu Val Ser  
 145 150 155 160  
 Met Thr Asn Pro Pro Thr Ser Ser Ser Ser Ala Pro Ser Pro Ala Ala  
 165 170 175  
 Ser Ser Ser Ser Ser Ala Ser Gln Ser Pro Pro Leu Ser Cys Ala Val  
 180 185 190  
 Pro Ser Asn Asp Ser Ser Pro Ile Tyr Ser Ala Ala Pro Thr Phe Pro  
 195 200 205  
 Thr Pro Asn Thr Asp Ile Phe Pro Glu Pro Gln Ser Gln Ala Phe Pro  
 210 215 220



Gly Ser Ala Gly Thr Ala Leu Gln Tyr Pro Pro Pro Ala Tyr Pro Ala  
 225                      230                      235                      240  
 Thr Lys Gly Gly Phe Gln Val Pro Met Ile Pro Asp Tyr Leu Phe Pro  
                     245                      250                      255  
 Gln Gln Gln Gly Asp Leu Ser Leu Gly Thr Pro Asp Gln Lys Pro Phe  
                     260                      265                      270  
 Gln Gly Leu Glu Asn Arg Thr Gln Gln Pro Ser Leu Thr Pro Leu Ser  
                     275                      280                      285  
 Thr Ile Lys Ala Phe Ala Thr Gln Ser Gly Ser Gln Asp Leu Lys Ala  
                     290                      295                      300  
 Leu Asn Thr Thr Tyr Gln Ser Gln Leu Ile Lys Pro Ser Arg Met Arg  
 305                      310                      315                      320  
 Lys Tyr Pro Asn Arg Pro Ser Lys Thr Pro Pro His Glu Arg Pro Tyr  
                     325                      330                      335  
 Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Arg Ser Asp Glu  
                     340                      345                      350  
 Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys Pro Phe Gln Cys  
                     355                      360                      365  
 Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His Leu Thr Thr His  
                     370                      375                      380  
 Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly  
 385                      390                      395                      400  
 Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His Thr Lys Ile His  
                     405                      410                      415  
 Leu Arg Gln Lys Asp Lys Lys Ala Asp Lys Ser Val Val Ala Ser Pro  
                     420                      425                      430  
 Ala Ala Ser Ser Leu Ser Ser Tyr Pro Ser Pro Val Ala Thr Ser Tyr  
                     435                      440                      445  
 Pro Ser Pro Ala Thr Thr Ser Phe Pro Ser Pro Val Pro Thr Ser Tyr

450                      455                      460  
 Ser Ser Pro Gly Ser Ser Thr Tyr Pro Ser Pro Ala His Ser Gly Phe  
 465                      470                      475                      480  
 Pro Ser Pro Ser Val Ala Thr Thr Phe Ala Ser Val Pro Pro Ala Phe  
                     485                      490                      495  
 Pro Thr Gln Val Ser Ser Phe Pro Ser Ala Gly Val Ser Ser Ser Phe  
                     500                      505                      510  
 Ser Thr Ser Thr Gly Leu Ser Asp Met Thr Ala Thr Phe Ser Pro Arg  
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 Thr Ile Glu Ile Cys  
                     530

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<211> 4145

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<220>

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<222> (1202).. (2218)

<400> 1004

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 tcattgggat cgttaaaatg aatcttccta caccttgcag tgtatgattt aacttttaca 360  
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gagtaacatt aaataccctg aaggaaaaaa aacctaaata tcaaaataac tgattaaaaat 480  
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 agcagcgcac ttggagacg tgtccggtct actccggact cgcattcat tccactcggc 1140  
 catagccctg gcttcccggc gacctcagcg tggtcacagg ggccccctg tgcccaggga 1200  
 a atg ttt caa gct ttt ccc gga gac tac gac tcc ggc tcc cgg tgt agc 1249

Met Phe Gln Ala Phe Pro Gly Asp Tyr Asp Ser Gly Ser Arg Cys Ser

|   |      |    |    |  |
|---|------|----|----|--|
| 1   | 5    | 10 | 15 |  |
| tca tca ccc tcc gcc gag tct cag tac ctg tct tgc gtg gac tcc ttc | 1297 |    |    |  |
| Ser Ser Pro Ser Ala Glu Ser Gln Tyr Leu Ser Ser Val Asp Ser Phe |      |    |    |  |
| 20  | 25   | 30 |    |  |
| ggc agt cca ccc acc gcc gcc gcc tcc cag gag tgc gcc ggt ctc ggg | 1345 |    |    |  |
| Gly Ser Pro Pro Thr Ala Ala Ala Ser Gln Glu Cys Ala Gly Leu Gly |      |    |    |  |
| 35  | 40   | 45 |    |  |
| gaa atg ccc ggc tcc ttc gtg cca acg gtc acc gca atc aca acc agc | 1393 |    |    |  |
| Glu Met Pro Gly Ser Phe Val Pro Thr Val Thr Ala Ile Thr Thr Ser |      |    |    |  |
| 50  | 55   | 60 |    |  |
| cag gat ctt cag tgg ctc gtg caa ccc acc ctc atc tct tcc atg gcc | 1441 |    |    |  |
| Gln Asp Leu Gln Trp Leu Val Gln Pro Thr Leu Ile Ser Ser Met Ala |      |    |    |  |
| 65  | 70   | 75 | 80 |  |
| cag tcc cag ggg cag cca ctg gcc tcc cag cct cca gct gtt gac cct | 1489 |    |    |  |

|   |      |
|---|------|
| Gln Ser Gln Gly Gln Pro Leu Ala Ser Gln Pro Pro Ala Val Asp Pro |      |
| 85  | 90   |
| 95  |      |
| tat gac atg cca gga acc agc tac tca acc cca ggc ctg agt gcc tac | 1537 |
| Tyr Asp Met Pro Gly Thr Ser Tyr Ser Thr Pro Gly Leu Ser Ala Tyr |      |
| 100   | 105  |
| 110   |      |
| agc act ggc ggg gca agc gga agt ggt ggg cct tca acc agc aca acc | 1585 |
| Ser Thr Gly Gly Ala Ser Gly Ser Gly Gly Pro Ser Thr Ser Thr Thr |      |
| 115   | 120  |
| 125   |      |
| acc agt gga cct gtg tct gcc cgt cca gcc aga gcc agg cct aga aga | 1633 |
| Thr Ser Gly Pro Val Ser Ala Arg Pro Ala Arg Ala Arg Pro Arg Arg |      |
| 130   | 135  |
| 140   |      |
| ccc cga gaa gag aca ctt acc cca gaa gaa gaa gaa aag cga agg gtt | 1681 |
| Pro Arg Glu Glu Thr Leu Thr Pro Glu Glu Glu Glu Lys Arg Arg Val |      |
| 145   | 150  |
| 155   | 160  |
| cgc aga gag cgg aac aag ctg gct gca gct aag tgc agg aac cgt cgg | 1729 |
| Arg Arg Glu Arg Asn Lys Leu Ala Ala Ala Lys Cys Arg Asn Arg Arg |      |
| 165   | 170  |
| 175   |      |
| agg gag ctg aca gat cga ctt cag gcg gaa act gat cag ctt gaa gag | 1777 |
| Arg Glu Leu Thr Asp Arg Leu Gln Ala Glu Thr Asp Gln Leu Glu Glu |      |
| 180   | 185  |
| 190   |      |
| gaa aag gca gag ctg gag tcg gag atc gcc gag ctg caa aaa gag aag | 1825 |
| Glu Lys Ala Glu Leu Glu Ser Glu Ile Ala Glu Leu Gln Lys Glu Lys |      |
| 195   | 200  |
| 205   |      |
| gaa cgc ctg gag ttt gtc ctg gtg gcc cac aaa ccg ggc tgc aag atc | 1873 |
| Glu Arg Leu Glu Phe Val Leu Val Ala His Lys Pro Gly Cys Lys Ile |      |
| 210   | 215  |
| 220   |      |
| ccc tac gaa gag ggg ccg ggg cca ggc ccg ctg gcc gag gtg aga gat | 1921 |
| Pro Tyr Glu Glu Gly Pro Gly Pro Gly Pro Leu Ala Glu Val Arg Asp |      |
| 225   | 230  |
| 235   | 240  |

ttg cca ggg tca aca tcc gct aag gaa gac ggc ttc ggc tgg ctg ctg 1969  
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 Pro Pro Pro Pro Pro Pro Pro Leu Pro Phe Gln Ser Ser Arg Asp Ala  
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                     275                    280                    285  
 ctc ggc gac ccc ttc ccc gtt gtt agc cct tcg tac act tcc tcg ttt 2113  
 Leu Gly Asp Pro Phe Pro Val Val Ser Pro Ser Tyr Thr Ser Ser Phe  
                     290                    295                    300  
 gtc ctc acc tgc ccg gag gtc tcc gcg ttc gcc ggc gcc caa cgc acc 2161  
 Val Leu Thr Cys Pro Glu Val Ser Ala Phe Ala Gly Ala Gln Arg Thr  
                     305                    310                    315                    320  
 agc ggc agc gag cag ccg tcc gac ccg ctg aac tcg ccc tcc ctt ctt 2209  
 Ser Gly Ser Glu Gln Pro Ser Asp Pro Leu Asn Ser Pro Ser Leu Leu  
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 Ala Leu  
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<210> 1005

<211> 338

<212> PRT

<213> Mus musculus

&lt;400&gt; 1005

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| Met | Phe | Gln | Ala | Phe | Pro | Gly | Asp | Tyr | Asp | Ser | Gly | Ser | Arg | Cys | Ser |
| 1   |     |     |     | 5   |     |     |     |     |     | 10  |     |     |     | 15  |     |
| Ser | Ser | Pro | Ser | Ala | Glu | Ser | Gln | Tyr | Leu | Ser | Ser | Val | Asp | Ser | Phe |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Ser | Pro | Pro | Thr | Ala | Ala | Ala | Ser | Gln | Glu | Cys | Ala | Gly | Leu | Gly |
|     |     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Glu | Met | Pro | Gly | Ser | Phe | Val | Pro | Thr | Val | Thr | Ala | Ile | Thr | Thr | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gln | Asp | Leu | Gln | Trp | Leu | Val | Gln | Pro | Thr | Leu | Ile | Ser | Ser | Met | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln | Ser | Gln | Gly | Gln | Pro | Leu | Ala | Ser | Gln | Pro | Pro | Ala | Val | Asp | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Asp | Met | Pro | Gly | Thr | Ser | Tyr | Ser | Thr | Pro | Gly | Leu | Ser | Ala | Tyr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Thr | Gly | Gly | Ala | Ser | Gly | Ser | Gly | Gly | Pro | Ser | Thr | Ser | Thr | Thr |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Thr | Ser | Gly | Pro | Val | Ser | Ala | Arg | Pro | Ala | Arg | Ala | Arg | Pro | Arg | Arg |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Arg | Glu | Glu | Thr | Leu | Thr | Pro | Glu | Glu | Glu | Glu | Lys | Arg | Arg | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Arg | Arg | Glu | Arg | Asn | Lys | Leu | Ala | Ala | Ala | Lys | Cys | Arg | Asn | Arg | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     | 175 |     |     |
| Arg | Glu | Leu | Thr | Asp | Arg | Leu | Gln | Ala | Glu | Thr | Asp | Gln | Leu | Glu | Glu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Lys | Ala | Glu | Leu | Glu | Ser | Glu | Ile | Ala | Glu | Leu | Gln | Lys | Glu | Lys |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |
| Glu | Arg | Leu | Glu | Phe | Val | Leu | Val | Ala | His | Lys | Pro | Gly | Cys | Lys | Ile |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |

Pro Tyr Glu Glu Gly Pro Gly Pro Gly Pro Leu Ala Glu Val Arg Asp  
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 Leu Pro Gly Ser Thr Ser Ala Lys Glu Asp Gly Phe Gly Trp Leu Leu  
    245                                      250                                      255  
 Pro Pro Pro Pro Pro Pro Pro Pro Leu Pro Phe Gln Ser Ser Arg Asp Ala  
    260                                      265                                      270  
 Pro Pro Asn Leu Thr Ala Ser Leu Phe Thr His Ser Glu Val Gln Val  
    275                                      280                                      285  
 Leu Gly Asp Pro Phe Pro Val Val Ser Pro Ser Tyr Thr Ser Ser Phe  
    290                                      295                                      300  
 Val Leu Thr Cys Pro Glu Val Ser Ala Phe Ala Gly Ala Gln Arg Thr  
 305                                      310                                      315                                      320  
 Ser Gly Ser Glu Gln Pro Ser Asp Pro Leu Asn Ser Pro Ser Leu Leu  
    325                                      330                                      335  
 Ala Leu

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<211> 4152

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (101).. (1915)

<400> 1006

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Met Leu Phe Arg Ala



|   |     |     |     |
|---|-----|-----|-----|
|   | 1   | 5   |     |
| gtg ctg ctc tgc gct gcc ctg ggg ctc agc cag gca gca aat cct tgc |     |     | 163 |
| Val Leu Leu Cys Ala Ala Leu Gly Leu Ser Gln Ala Ala Asn Pro Cys |     |     |     |
|   | 10  | 15  | 20  |
| tgt tcc aat cca tgt caa aac cgt ggg gaa tgt atg agc aca gga ttt |     |     | 211 |
| Cys Ser Asn Pro Cys Gln Asn Arg Gly Glu Cys Met Ser Thr Gly Phe |     |     |     |
|   | 25  | 30  | 35  |
| gac cag tat aag tgt gac tgt acc cgg act gga ttc tat ggt gaa aac |     |     | 259 |
| Asp Gln Tyr Lys Cys Asp Cys Thr Arg Thr Gly Phe Tyr Gly Glu Asn |     |     |     |
|   | 40  | 45  | 50  |
| tgt act aca cct gaa ttt ctg aca aga atc aaa tta ctg ctg aag ccc |     |     | 307 |
| Cys Thr Thr Pro Glu Phe Leu Thr Arg Ile Lys Leu Leu Leu Lys Pro |     |     |     |
|   | 55  | 60  | 65  |
| acc cca aac aca gtg cac tac atc ctg acc cac ttc aag gga gtc tgg |     |     | 355 |
| Thr Pro Asn Thr Val His Tyr Ile Leu Thr His Phe Lys Gly Val Trp |     |     |     |
|   | 70  | 75  | 80  |
| aac att gtg aac aac atc ccc ttc ctg cga agt tta atc atg aaa tat |     |     | 403 |
| Asn Ile Val Asn Asn Ile Pro Phe Leu Arg Ser Leu Ile Met Lys Tyr |     |     |     |
|   | 90  | 95  | 100 |
| gtg ctg aca tcc aga tca tat ttg att gac agt cca cct act tac aat |     |     | 451 |
| Val Leu Thr Ser Arg Ser Tyr Leu Ile Asp Ser Pro Pro Thr Tyr Asn |     |     |     |
|   | 105 | 110 | 115 |
| gtg cac tat ggt tac aaa agc tgg gaa gcc ttc tcc aac ctc tcc tac |     |     | 499 |
| Val His Tyr Gly Tyr Lys Ser Trp Glu Ala Phe Ser Asn Leu Ser Tyr |     |     |     |
|   | 120 | 125 | 130 |
| tac acc agg gcc ctt cct ccc gta gca gat gac tgc cca act ccc atg |     |     | 547 |
| Tyr Thr Arg Ala Leu Pro Pro Val Ala Asp Asp Cys Pro Thr Pro Met |     |     |     |
|   | 135 | 140 | 145 |
| ggt gtg aag gga aat aag gag ctt cct gat tca aaa gaa gtg ctg gaa |     |     | 595 |

|   |      |
|---|------|
| Gly Val Lys Gly Asn Lys Glu Leu Pro Asp Ser Lys Glu Val Leu Glu |      |
| 150   | 155  |
| aag gtt ctt cta cgg aga gag ttc atc cct gac ccc caa ggc tca aat | 643  |
| Lys Val Leu Leu Arg Arg Glu Phe Ile Pro Asp Pro Gln Gly Ser Asn |      |
| 170   | 175  |
| atg atg ttt gca ttc ttt gcc cag cac ttc acc cat cag ttt ttc aag | 691  |
| Met Met Phe Ala Phe Phe Ala Gln His Phe Thr His Gln Phe Phe Lys |      |
| 185   | 190  |
| aca gat cat aag cga gga cct ggg ttc acc cga gga ctg ggc cat gga | 739  |
| Thr Asp His Lys Arg Gly Pro Gly Phe Thr Arg Gly Leu Gly His Gly |      |
| 200   | 205  |
| gtg gac tta aat cac att tat ggt gaa act ctg gac aga caa cat aaa | 787  |
| Val Asp Leu Asn His Ile Tyr Gly Glu Thr Leu Asp Arg Gln His Lys |      |
| 215   | 220  |
| ctg cgc ctt ttc aag gat gga aaa ttg aaa tat cag gtc att ggt gga | 835  |
| Leu Arg Leu Phe Lys Asp Gly Lys Leu Lys Tyr Gln Val Ile Gly Gly |      |
| 230   | 235  |
| gag gtg tat ccc ccc aca gtc aaa gac act cag gta gag atg atc tac | 883  |
| Glu Val Tyr Pro Pro Thr Val Lys Asp Thr Gln Val Glu Met Ile Tyr |      |
| 250   | 255  |
| cct cct cac atc cct gag aac ctg cag ttt gct gtg ggg cag gaa gtc | 931  |
| Pro Pro His Ile Pro Glu Asn Leu Gln Phe Ala Val Gly Gln Glu Val |      |
| 265   | 270  |
| ttt ggt ctg gtg cct ggt ctg atg atg tat gcc acc atc tgg ctt cgg | 979  |
| Phe Gly Leu Val Pro Gly Leu Met Met Tyr Ala Thr Ile Trp Leu Arg |      |
| 280   | 285  |
| gag cac aac aga gtg tgc gac ata ctc aag cag gag cat cct gag tgg | 1027 |
| Glu His Asn Arg Val Cys Asp Ile Leu Lys Gln Glu His Pro Glu Trp |      |
| 295   | 300  |
|   | 305  |

ggt gat gag caa cta ttc caa acc agc aga ctc ata ctc ata gga gag 1075  
 Gly Asp Glu Gln Leu Phe Gln Thr Ser Arg Leu Ile Leu Ile Gly Glu  
 310 315 320 325  
 act atc aag ata gtg atc gaa gac tac gtg caa cac ctg agc ggt tac 1123  
 Thr Ile Lys Ile Val Ile Glu Asp Tyr Val Gln His Leu Ser Gly Tyr  
 330 335 340  
 cac ttc aaa ctc aag ttt gac cca gag ctc ctt ttc aac cag cag ttc 1171  
 His Phe Lys Leu Lys Phe Asp Pro Glu Leu Leu Phe Asn Gln Gln Phe  
 345 350 355  
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 Gln Tyr Gln Asn Arg Ile Ala Ser Glu Phe Asn Thr Leu Tyr His Trp  
 360 365 370  
 cac ccc ctg ctg ccc gac acc ttc aac att gaa gac cag gag tac agc 1267  
 His Pro Leu Leu Pro Asp Thr Phe Asn Ile Glu Asp Gln Glu Tyr Ser  
 375 380 385  
 ttt aaa cag ttt ctc tac aac aac tcc atc ctc ctg gaa cat gga ctc 1315  
 Phe Lys Gln Phe Leu Tyr Asn Asn Ser Ile Leu Leu Glu His Gly Leu  
 390 395 400 405  
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 Gly Gly Arg Asn Val Pro Ile Ala Val Gln Ala Val Ala Lys Ala Ser  
 425 430 435  
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 Ile Asp Gln Ser Arg Glu Met Lys Tyr Gln Ser Leu Asn Glu Tyr Arg  
 440 445 450  
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 Lys Arg Phe Ser Leu Lys Pro Tyr Thr Ser Phe Glu Glu Leu Thr Gly

|   |     |     |      |
|---|-----|-----|------|
| 455   | 460 | 465 |      |
| gag aag gaa atg gct gca gaa ttg aaa gcc ctc tac agt gac atc gat     |     |     | 1555 |
| Glu Lys Glu Met Ala Ala Glu Leu Lys Ala Leu Tyr Ser Asp Ile Asp     |     |     |      |
| 470   | 475 | 480 | 485  |
| gtc atg gaa ctg tac cct gcc ctg ctg gtg gaa aaa cct cgt cca gat     |     |     | 1603 |
| Val Met Glu Leu Tyr Pro Ala Leu Leu Val Glu Lys Pro Arg Pro Asp     |     |     |      |
| 490   | 495 | 500 |      |
| gct atc ttt ggg gag acc atg gta gag ctt gga gca cca ttc tcc ttg     |     |     | 1651 |
| Ala Ile Phe Gly Glu Thr Met Val Glu Leu Gly Ala Pro Phe Ser Leu     |     |     |      |
| 505   | 510 | 515 |      |
| aaa gga ctt atg gga aat ccc atc tgt tct cct caa tac tgg aag ccg     |     |     | 1699 |
| Lys Gly Leu Met Gly Asn Pro Ile Cys Ser Pro Gln Tyr Trp Lys Pro     |     |     |      |
| 520   | 525 | 530 |      |
| agc acc ttt gga ggc gaa gtg ggt ttt aag atc atc aat act gcc tca     |     |     | 1747 |
| Ser Thr Phe Gly Gly Glu Val Gly Phe Lys Ile Ile Asn Thr Ala Ser     |     |     |      |
| 535   | 540 | 545 |      |
| att cag tct ctc atc tgc aat aat gtg aag ggg tgt ccc ttc act tct     |     |     | 1795 |
| Ile Gln Ser Leu Ile Cys Asn Asn Val Lys Gly Cys Pro Phe Thr Ser     |     |     |      |
| 550   | 555 | 560 | 565  |
| ttc aat gtg caa gat cca cag cct acc aaa aca gcc acc atc aat gca     |     |     | 1843 |
| Phe Asn Val Gln Asp Pro Gln Pro Thr Lys Thr Ala Thr Ile Asn Ala     |     |     |      |
| 570   | 575 | 580 |      |
| agt gcc tcc cac tcc aga cta gat gac att aac cct aca gta cta atc     |     |     | 1891 |
| Ser Ala Ser His Ser Arg Leu Asp Asp Ile Asn Pro Thr Val Leu Ile     |     |     |      |
| 585   | 590 | 595 |      |
| aaa agg cgt tca act gag ctg taa aagtctactg accatattta tttatttatg    |     |     | 1945 |
| Lys Arg Arg Ser Thr Glu Leu   |     |     |      |
| 600   | 605 |     |      |
| tgaagaattt aatttaatta tttaatatatt atactgaatt ttttttcattg taacatcttc |     |     | 2005 |

cataacagaa ggcaatgttc ttgaacaatg ttacatttgt gaagattccc tccggigtgt 2065  
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<210> 1007

<211> 604

<212> PRT

<213> Mus musculus

<400> 1007

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 Met Ser Thr Gly Phe Asp Gln Tyr Lys Cys Asp Cys Thr Arg Thr Gly  
 35 40 45  
 Phe Tyr Gly Glu Asn Cys Thr Thr Pro Glu Phe Leu Thr Arg Ile Lys  
 50 55 60  
 Leu Leu Leu Lys Pro Thr Pro Asn Thr Val His Tyr Ile Leu Thr His  
 65 70 75 80  
 Phe Lys Gly Val Trp Asn Ile Val Asn Asn Ile Pro Phe Leu Arg Ser  
 85 90 95  
 Leu Ile Met Lys Tyr Val Leu Thr Ser Arg Ser Tyr Leu Ile Asp Ser  
 100 105 110  
 Pro Pro Thr Tyr Asn Val His Tyr Gly Tyr Lys Ser Trp Glu Ala Phe

|   |     |     |
|---|-----|-----|
| 115   | 120 | 125 |
| Ser Asn Leu Ser Tyr Tyr Thr Arg Ala Leu Pro Pro Val Ala Asp Asp |     |     |
| 130   | 135 | 140 |
| Cys Pro Thr Pro Met Gly Val Lys Gly Asn Lys Glu Leu Pro Asp Ser |     |     |
| 145   | 150 | 155 |
| Lys Glu Val Leu Glu Lys Val Leu Leu Arg Arg Glu Phe Ile Pro Asp |     |     |
| 165   | 170 | 175 |
| Pro Gln Gly Ser Asn Met Met Phe Ala Phe Phe Ala Gln His Phe Thr |     |     |
| 180   | 185 | 190 |
| His Gln Phe Phe Lys Thr Asp His Lys Arg Gly Pro Gly Phe Thr Arg |     |     |
| 195   | 200 | 205 |
| Gly Leu Gly His Gly Val Asp Leu Asn His Ile Tyr Gly Glu Thr Leu |     |     |
| 210   | 215 | 220 |
| Asp Arg Gln His Lys Leu Arg Leu Phe Lys Asp Gly Lys Leu Lys Tyr |     |     |
| 225   | 230 | 235 |
| Gln Val Ile Gly Gly Glu Val Tyr Pro Pro Thr Val Lys Asp Thr Gln |     |     |
| 245   | 250 | 255 |
| Val Glu Met Ile Tyr Pro Pro His Ile Pro Glu Asn Leu Gln Phe Ala |     |     |
| 260   | 265 | 270 |
| Val Gly Gln Glu Val Phe Gly Leu Val Pro Gly Leu Met Met Tyr Ala |     |     |
| 275   | 280 | 285 |
| Thr Ile Trp Leu Arg Glu His Asn Arg Val Cys Asp Ile Leu Lys Gln |     |     |
| 290   | 295 | 300 |
| Glu His Pro Glu Trp Gly Asp Glu Gln Leu Phe Gln Thr Ser Arg Leu |     |     |
| 305   | 310 | 315 |
| Ile Leu Ile Gly Glu Thr Ile Lys Ile Val Ile Glu Asp Tyr Val Gln |     |     |
| 325   | 330 | 335 |
| His Leu Ser Gly Tyr His Phe Lys Leu Lys Phe Asp Pro Glu Leu Leu |     |     |
| 340   | 345 | 350 |

Phe Asn Gln Gln Phe Gln Tyr Gln Asn Arg Ile Ala Ser Glu Phe Asn  
 355 360 365  
 Thr Leu Tyr His Trp His Pro Leu Leu Pro Asp Thr Phe Asn Ile Glu  
 370 375 380  
 Asp Gln Glu Tyr Ser Phe Lys Gln Phe Leu Tyr Asn Asn Ser Ile Leu  
 385 390 395 400  
 Leu Glu His Gly Leu Thr Gln Phe Val Glu Ser Phe Thr Arg Gln Ile  
 405 410 415  
 Ala Gly Arg Val Ala Gly Gly Arg Asn Val Pro Ile Ala Val Gln Ala  
 420 425 430  
 Val Ala Lys Ala Ser Ile Asp Gln Ser Arg Glu Met Lys Tyr Gln Ser  
 435 440 445  
 Leu Asn Glu Tyr Arg Lys Arg Phe Ser Leu Lys Pro Tyr Thr Ser Phe  
 450 455 460  
 Glu Glu Leu Thr Gly Glu Lys Glu Met Ala Ala Glu Leu Lys Ala Leu  
 465 470 475 480  
 Tyr Ser Asp Ile Asp Val Met Glu Leu Tyr Pro Ala Leu Leu Val Glu  
 485 490 495  
 Lys Pro Arg Pro Asp Ala Ile Phe Gly Glu Thr Met Val Glu Leu Gly  
 500 505 510  
 Ala Pro Phe Ser Leu Lys Gly Leu Met Gly Asn Pro Ile Cys Ser Pro  
 515 520 525  
 Gln Tyr Trp Lys Pro Ser Thr Phe Gly Gly Glu Val Gly Phe Lys Ile  
 530 535 540  
 Ile Asn Thr Ala Ser Ile Gln Ser Leu Ile Cys Asn Asn Val Lys Gly  
 545 550 555 560  
 Cys Pro Phe Thr Ser Phe Asn Val Gln Asp Pro Gln Pro Thr Lys Thr  
 565 570 575  
 Ala Thr Ile Asn Ala Ser Ala Ser His Ser Arg Leu Asp Asp Ile Asn



580

585

590

Pro Thr Val Leu Ile Lys Arg Arg Ser Thr Glu Leu

595

600

&lt;210&gt; 1008

&lt;211&gt; 503

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 1008

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&lt;210&gt; 1009

&lt;211&gt; 483

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 1009

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ccagcggaag tcgtcaagca gaggaatgcag atgtacaact cgccgtacca ccgcgtgaca 180

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 caagagcact ttaacccccca gagacggtag aaccccagct cccatgtgct ctgtggggcc 360  
 tgcgcaggag cagtagctgc cgccgccaca accccactgg acgtttgtaa aacactgctc 420  
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<210> 1010

<211> 429

<212> DNA

<213> *Mus musculus*

<400> 1010

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 ctgcagcttt caaagctcga acaaaagctc gaagcaaattg ccgagataag agagcagatg 180  
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 ttaaataatt ttgatgtag ggttgggttg tatTTTaatt taatgtacag tgttacaaat 360  
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<210> 1011

<211> 670

<212> DNA

<213> *Mus musculus*

<400> 1011

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<210> 1012

<211> 688

<212> DNA

<213> Mus musculus

<400> 1012

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aagggcaggg gccttaggaa ccagccag

688

&lt;210&gt; 1013

&lt;211&gt; 1817

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (320).. (1354)

&lt;400&gt; 1013

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Met Cys Thr Lys Met Glu Gln Pro Phe Tyr His

1

5

10

gac gac tct tac gca gcg gcg gga tac ggt cgg agc cct ggc agc ctg 400

Asp Asp Ser Tyr Ala Ala Ala Gly Tyr Gly Arg Ser Pro Gly Ser Leu

15

20

25

tct cta cac gac tac aaa ctc ctg aaa ccc acc ttg gcg ctc aac ctg 448

Ser Leu His Asp Tyr Lys Leu Leu Lys Pro Thr Leu Ala Leu Asn Leu

30

35

40

gcg gat ccc tat cgg ggt ctc aag ggt cct ggg gcg cgg ggt cca ggc 496

Ala Asp Pro Tyr Arg Gly Leu Lys Gly Pro Gly Ala Arg Gly Pro Gly

45

50

55

ccg gag ggc agt ggg gca ggc agc tac ttt tcg ggt cag gga tca gac 544  
 Pro Glu Gly Ser Gly Ala Gly Ser Tyr Phe Ser Gly Gln Gly Ser Asp  
 60 65 70 75  
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 Thr Gly Ala Ser Leu Lys Leu Ala Ser Thr Glu Leu Glu Arg Leu Ile  
 80 85 90  
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 Val Pro Asn Ser Asn Gly Val Ile Thr Thr Thr Pro Thr Pro Pro Gly  
 95 100 105  
 cag tac ttt tac ccc cgt ggg ggt ggc agc ggt gga ggt aca ggg ggc 688  
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 110 115 120  
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 Gly Val Thr Glu Glu Gln Glu Gly Phe Ala Asp Gly Phe Val Lys Ala  
 125 130 135  
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 Leu Asp Asp Leu His Lys Met Asn His Val Thr Pro Pro Asn Val Ser  
 140 145 150 155  
 ctg ggc gcc agc ggg ggt ccc cag gcc ggc cca ggg ggc gtc tat gct 832  
 Leu Gly Ala Ser Gly Gly Pro Gln Ala Gly Pro Gly Gly Val Tyr Ala  
 160 165 170  
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 Gly Pro Glu Pro Pro Pro Val Tyr Thr Asn Leu Ser Ser Tyr Ser Pro  
 175 180 185  
 gcc tct gca ccc tct gga ggc tcc ggg acc gcc gtc ggg act ggg agc 928  
 Ala Ser Ala Pro Ser Gly Gly Ser Gly Thr Ala Val Gly Thr Gly Ser  
 190 195 200  
 tca tac ccg acg gcc acc atc agc tac ctc cca cat gca cca ccc ttt 976  
 Ser Tyr Pro Thr Ala Thr Ile Ser Tyr Leu Pro His Ala Pro Pro Phe

|   |     |     |      |
|---|-----|-----|------|
| 205   | 210 | 215 |      |
| gcg ggc ggc cac ccg gca cag ctg ggt ttg agt cgt ggc gct tcc gcc   |     |     | 1024 |
| Ala Gly Gly His Pro Ala Gln Leu Gly Leu Ser Arg Gly Ala Ser Ala   |     |     |      |
| 220   | 225 | 230 | 235  |
| ttt aaa gag gaa ccg cag acc gta ccg gag gca cgc agc cgc gac gcc   |     |     | 1072 |
| Phe Lys Glu Glu Pro Gln Thr Val Pro Glu Ala Arg Ser Arg Asp Ala   |     |     |      |
| 240   | 245 | 250 |      |
| acg ccg cct gtg tcc ccc atc aac atg gaa gac cag gag cgc atc aaa   |     |     | 1120 |
| Thr Pro Pro Val Ser Pro Ile Asn Met Glu Asp Gln Glu Arg Ile Lys   |     |     |      |
| 255   | 260 | 265 |      |
| gtg gag cga aag cgg ctg cgg aac agg ctg gcg gcc acc aag tgc cgg   |     |     | 1168 |
| Val Glu Arg Lys Arg Leu Arg Asn Arg Leu Ala Ala Thr Lys Cys Arg   |     |     |      |
| 270   | 275 | 280 |      |
| aag cgg aag ctg gag cgc atc gcg cgc ctg gag gac aag gtg aag aca   |     |     | 1216 |
| Lys Arg Lys Leu Glu Arg Ile Ala Arg Leu Glu Asp Lys Val Lys Thr   |     |     |      |
| 285   | 290 | 295 |      |
| ctc aag gct gag aac gcg ggg ctg tcg agt gct gcc ggt ctc cta agg   |     |     | 1264 |
| Leu Lys Ala Glu Asn Ala Gly Leu Ser Ser Ala Ala Gly Leu Leu Arg   |     |     |      |
| 300   | 305 | 310 | 315  |
| gag caa gtg gcg cag ctc aag cag aag gtc atg acc cat gtc agc aac   |     |     | 1312 |
| Glu Gln Val Ala Gln Leu Lys Gln Lys Val Met Thr His Val Ser Asn   |     |     |      |
| 320   | 325 | 330 |      |
| ggc tgc cag ttg ctg cta ggg gtc aag gga cac gcc ttc tga           |     |     | 1354 |
| Gly Cys Gln Leu Leu Leu Gly Val Lys Gly His Ala Phe               |     |     |      |
| 335   | 340 | 345 |      |
| gagcctccct tgccccatac ggacaccccc agccttgaag gctgggcgcc tgccccccac |     |     | 1414 |
| tggggtgagg ggggcaggcg atgggcaccc gccaaaaggc ctggggcgca gctcacacac |     |     | 1474 |
| tggactccgg cccgcccgcc tgcgccagc ccttccacct cgaggittac atggccccct  |     |     | 1534 |
| tccagcgtat ttgtatgtt ttttttttct gcaaagagac tgaattcata ttgaatataa  |     |     | 1594 |

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 ctgcatagta ctgtggagaa gaaacacgca cttcgtgtct aaagtctatt ttaagatgtg 1774  
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<210> 1014

<211> 344

<212> PRT

<213> Mus musculus

<400> 1014

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Cys | Thr | Lys | Met | Glu | Gln | Pro | Phe | Tyr | His | Asp | Asp | Ser | Tyr | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Ala | Gly | Tyr | Gly | Arg | Ser | Pro | Gly | Ser | Leu | Ser | Leu | His | Asp | Tyr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Leu | Leu | Lys | Pro | Thr | Leu | Ala | Leu | Asn | Leu | Ala | Asp | Pro | Tyr | Arg |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly | Leu | Lys | Gly | Pro | Gly | Ala | Arg | Gly | Pro | Gly | Pro | Glu | Gly | Ser | Gly |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ala | Gly | Ser | Tyr | Phe | Ser | Gly | Gln | Gly | Ser | Asp | Thr | Gly | Ala | Ser | Leu |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     | 80  |     |
| Lys | Leu | Ala | Ser | Thr | Glu | Leu | Glu | Arg | Leu | Ile | Val | Pro | Asn | Ser | Asn |
|     |     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |
| Gly | Val | Ile | Thr | Thr | Thr | Pro | Thr | Pro | Pro | Gly | Gln | Tyr | Phe | Tyr | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Thr | Gly | Gly | Gly | Val | Thr | Glu | Glu |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Gln | Glu | Gly | Phe | Ala | Asp | Gly | Phe | Val | Lys | Ala | Leu | Asp | Asp | Leu | His |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |

Lys Met Asn His Val Thr Pro Pro Asn Val Ser Leu Gly Ala Ser Gly  
 145                      150                      155                      160  
 Gly Pro Gln Ala Gly Pro Gly Gly Val Tyr Ala Gly Pro Glu Pro Pro  
                     165                      170                      175  
 Pro Val Tyr Thr Asn Leu Ser Ser Tyr Ser Pro Ala Ser Ala Pro Ser  
                     180                      185                      190  
 Gly Gly Ser Gly Thr Ala Val Gly Thr Gly Ser Ser Tyr Pro Thr Ala  
                     195                      200                      205  
 Thr Ile Ser Tyr Leu Pro His Ala Pro Pro Phe Ala Gly Gly His Pro  
                     210                      215                      220  
 Ala Gln Leu Gly Leu Ser Arg Gly Ala Ser Ala Phe Lys Glu Glu Pro  
 225                      230                      235                      240  
 Gln Thr Val Pro Glu Ala Arg Ser Arg Asp Ala Thr Pro Pro Val Ser  
                     245                      250                      255  
 Pro Ile Asn Met Glu Asp Gln Glu Arg Ile Lys Val Glu Arg Lys Arg  
                     260                      265                      270  
 Leu Arg Asn Arg Leu Ala Ala Thr Lys Cys Arg Lys Arg Lys Leu Glu  
                     275                      280                      285  
 Arg Ile Ala Arg Leu Glu Asp Lys Val Lys Thr Leu Lys Ala Glu Asn  
                     290                      295                      300  
 Ala Gly Leu Ser Ser Ala Ala Gly Leu Leu Arg Glu Gln Val Ala Gln  
 305                      310                      315                      320  
 Leu Lys Gln Lys Val Met Thr His Val Ser Asn Gly Cys Gln Leu Leu  
                     325                      330                      335  
 Leu Gly Val Lys Gly His Ala Phe  
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<210> 1015

<211> 321



<212> DNA

<213> Mus musculus

<400> 1015

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gtgactgcc a tcatcttcgt ggtggccagc agcagctaca acatacgtag gtcaatccgg 180
gaggccaacc ggactaaccg cctgaaggag gctctgaacc tcttcaagag catctggaac 240
aacagatggc tgcgcccata tctgtgattc tcttcctcaa caagcaagac ctgcttgcc 300
gaaaagtctc tgcctggcaa a                                     321

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<210> 1016

<211> 462

<212> DNA

<213> Mus musculus

<400> 1016

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aaagtagtgg agaggaagat aatgacctct cccctgagga gcgagaaaag aagcgacagt 180
ttgaaatgaa aaggaagcct cattacaatg aaggactcaa tattaagtta gccagacagt 240
taatttcaaa agacctacat gatgatgatg aagatgaaga aatggcagag actgcagatg 300
gagacagcat gaatgttgaa gactcaagtc aaggtcaggt gccttaaccg cgtccctgag 360
cctgagcggc tctgtgccta agacagtgcc tcctgtgctt agcttgtggg gctcccgcag 420
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<210> 1017

<211> 4240

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (124).. (1968)

<400> 1017

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aag atg gag gag ctg gtg gtg gaa gtg cgg ggc tcc aat ggc gct ttc 168
    Met Glu Glu Leu Val Val Glu Val Arg Gly Ser Asn Gly Ala Phe
      1             5             10             15
tac aag gca ttt gta aaa gat gtc cat gaa gat tct ata aca gtt gct 216
Tyr Lys Ala Phe Val Lys Asp Val His Glu Asp Ser Ile Thr Val Ala
      20             25             30
ttt gaa aac aac tgg caa cca gag aga cag att cca ttc cat gat gtg 264
Phe Glu Asn Asn Trp Gln Pro Glu Arg Gln Ile Pro Phe His Asp Val
      35             40             45
aga ttc cca cca cct gta ggt tat aat aaa gat ata aac gaa agt gat 312
Arg Phe Pro Pro Pro Val Gly Tyr Asn Lys Asp Ile Asn Glu Ser Asp
      50             55             60
gaa gtt gag gtt tat tcc aga gca aat gaa aaa gag cct tgc tgt tgg 360
Glu Val Glu Val Tyr Ser Arg Ala Asn Glu Lys Glu Pro Cys Cys Trp
      65             70             75
tgg tta gct aaa gtg agg atg ata aag ggt gag ttt tat gtg ata gaa 408
Trp Leu Ala Lys Val Arg Met Ile Lys Gly Glu Phe Tyr Val Ile Glu
      80             85             90             95
tat gca gca tgt gat gct acg tat aat gaa att gtc aca att gag cgt 456
Tyr Ala Ala Cys Asp Ala Thr Tyr Asn Glu Ile Val Thr Ile Glu Arg

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|   |     |     |     |
|---|-----|-----|-----|
| 100   | 105 | 110 |     |
| cta cga tct gtt aat ccc aac aaa cct gct aca aaa gat act ttc cat |     |     | 504 |
| Leu Arg Ser Val Asn Pro Asn Lys Pro Ala Thr Lys Asp Thr Phe His |     |     |     |
| 115   | 120 | 125 |     |
| aag atc aag ctg gag gtg cca gaa gat tta cga caa atg tgt gcc aaa |     |     | 552 |
| Lys Ile Lys Leu Glu Val Pro Glu Asp Leu Arg Gln Met Cys Ala Lys |     |     |     |
| 130   | 135 | 140 |     |
| gaa tca gca cat aag gat ttt aaa aag gca gtt ggt gcc ttc tct gta |     |     | 600 |
| Glu Ser Ala His Lys Asp Phe Lys Lys Ala Val Gly Ala Phe Ser Val |     |     |     |
| 145   | 150 | 155 |     |
| act tat gat cca gaa aat tat cag ctg gta att ttg tcc atc aat gaa |     |     | 648 |
| Thr Tyr Asp Pro Glu Asn Tyr Gln Leu Val Ile Leu Ser Ile Asn Glu |     |     |     |
| 160   | 165 | 170 | 175 |
| gtc acc tca aag cga gcc cac atg ttg att gac atg cac ttt cga agt |     |     | 696 |
| Val Thr Ser Lys Arg Ala His Met Leu Ile Asp Met His Phe Arg Ser |     |     |     |
| 180   | 185 | 190 |     |
| ctg cgc acc aag ttg tct ctt ata ctg aga aat gaa gaa gcc agt aaa |     |     | 744 |
| Leu Arg Thr Lys Leu Ser Leu Ile Leu Arg Asn Glu Glu Ala Ser Lys |     |     |     |
| 195   | 200 | 205 |     |
| caa ctg gag agt tca agg cag ctt gcc tca aga ttt cat gaa cag ttt |     |     | 792 |
| Gln Leu Glu Ser Ser Arg Gln Leu Ala Ser Arg Phe His Glu Gln Phe |     |     |     |
| 210   | 215 | 220 |     |
| atc gta cga gaa gat ctg atg ggt tta gct att ggt act cat ggt gct |     |     | 840 |
| Ile Val Arg Glu Asp Leu Met Gly Leu Ala Ile Gly Thr His Gly Ala |     |     |     |
| 225   | 230 | 235 |     |
| aat att cag caa gct aga aaa gtg cct ggc gtc act gct att gat tta |     |     | 888 |
| Asn Ile Gln Gln Ala Arg Lys Val Pro Gly Val Thr Ala Ile Asp Leu |     |     |     |
| 240   | 245 | 250 | 255 |
| gat gag gat acc tgc aca ttt cat att tat gga gag gat caa gat gca |     |     | 936 |

|   |             |
|---|-------------|
| Asp Glu Asp Thr Cys Thr Phe His Ile Tyr Gly Glu Asp Gln Asp Ala |             |
| 260   | 265 270     |
| gtg aaa aag gct aga agc ttt ctg gaa ttt gct gaa gat gtc ata cag | 984         |
| Val Lys Lys Ala Arg Ser Phe Leu Glu Phe Ala Glu Asp Val Ile Gln |             |
| 275   | 280 285     |
| gtt cca cga aac tta gta ggc aaa gta ata gga aaa aat gga aag ctg | 1032        |
| Val Pro Arg Asn Leu Val Gly Lys Val Ile Gly Lys Asn Gly Lys Leu |             |
| 290   | 295 300     |
| att caa gag atc gtg gac aag tca gga gtt gtg agg gtg agg att gag | 1080        |
| Ile Gln Glu Ile Val Asp Lys Ser Gly Val Val Arg Val Arg Ile Glu |             |
| 305   | 310 315     |
| gct gaa aat gag aaa agt gtc cca caa gaa gag gaa att atg cca cca | 1128        |
| Ala Glu Asn Glu Lys Ser Val Pro Gln Glu Glu Glu Ile Met Pro Pro |             |
| 320   | 325 330 335 |
| agt tcc cta cct tcc aat aat tca agg gtt gga cct aac tcc tct gaa | 1176        |
| Ser Ser Leu Pro Ser Asn Asn Ser Arg Val Gly Pro Asn Ser Ser Glu |             |
| 340   | 345 350     |
| gaa aag aaa cat tta gat aca aag gaa aac acc cat ttt tct caa cct | 1224        |
| Glu Lys Lys His Leu Asp Thr Lys Glu Asn Thr His Phe Ser Gln Pro |             |
| 355   | 360 365     |
| aac agt aca aaa gtc cag agg gtg tta gtg gtt tca tca att gta gca | 1272        |
| Asn Ser Thr Lys Val Gln Arg Val Leu Val Val Ser Ser Ile Val Ala |             |
| 370   | 375 380     |
| ggg gga ccc cag aaa cct gaa ccc aag gct tgg cag ggt atg gta cca | 1320        |
| Gly Gly Pro Gln Lys Pro Glu Pro Lys Ala Trp Gln Gly Met Val Pro |             |
| 385   | 390 395     |
| ttt gtt ttt gtg gga aca aaa gac agc atc gct aat gcc act gtt ctt | 1368        |
| Phe Val Phe Val Gly Thr Lys Asp Ser Ile Ala Asn Ala Thr Val Leu |             |
| 400   | 405 410 415 |

ttg gat tat cac ctg aac tat tta aag gaa gta gac cag ttg cgt ttg 1416  
 Leu Asp Tyr His Leu Asn Tyr Leu Lys Glu Val Asp Gln Leu Arg Leu  
 420 425 430  
 gag aga tta caa att gat gag cag ttg cga caa att gga gct agt tct 1464  
 Glu Arg Leu Gln Ile Asp Glu Gln Leu Arg Gln Ile Gly Ala Ser Ser  
 435 440 445  
 aga cca cca cca aat cgt aca gat aag gaa aaa ggc tat gtg act gat 1512  
 Arg Pro Pro Pro Asn Arg Thr Asp Lys Glu Lys Gly Tyr Val Thr Asp  
 450 455 460  
 gat ggt caa gga atg ggt cga ggt agt aga cct tac aga aat agg ggg 1560  
 Asp Gly Gln Gly Met Gly Arg Gly Ser Arg Pro Tyr Arg Asn Arg Gly  
 465 470 475  
 cac ggc aga cgc ggt cct gga tat act tca gga act aat tct gaa gca 1608  
 His Gly Arg Arg Gly Pro Gly Tyr Thr Ser Gly Thr Asn Ser Glu Ala  
 480 485 490 495  
 tca aat gct tct gaa aca gaa tct gac cac aga gac gaa ctc agt gat 1656  
 Ser Asn Ala Ser Glu Thr Glu Ser Asp His Arg Asp Glu Leu Ser Asp  
 500 505 510  
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 Trp Ser Leu Ala Pro Thr Glu Glu Glu Arg Glu Ser Phe Leu Arg Arg  
 515 520 525  
 gga gac gga cgg cgg cgt cga gga gga gga aga gga caa gga gga aga 1752  
 Gly Asp Gly Arg Arg Arg Arg Gly Gly Gly Arg Gly Gln Gly Gly Arg  
 530 535 540  
 gga aga gga gga ggc ttc aaa gga aac gac gat cat tcc cga aca gat 1800  
 Gly Arg Gly Gly Gly Phe Lys Gly Asn Asp Asp His Ser Arg Thr Asp  
 545 550 555  
 aat cgt cca cgt aat cca aga gag gct aaa gga aga aca gct gat gga 1848  
 Asn Arg Pro Arg Asn Pro Arg Glu Ala Lys Gly Arg Thr Ala Asp Gly

|   |     |     |     |      |
|---|-----|-----|-----|------|
| 560   | 565 | 570 | 575 |      |
| tcc ctg cag agt gcc tcc agt gaa ggg agc cgg ctg cgc acg ggt aaa     |     |     |     | 1896 |
| Ser Leu Gln Ser Ala Ser Ser Glu Gly Ser Arg Leu Arg Thr Gly Lys     |     |     |     |      |
|   | 580 | 585 | 590 |      |
| gat cgt aac cag aag aag gaa aag cca gac agc gta gat ggg ctg caa     |     |     |     | 1944 |
| Asp Arg Asn Gln Lys Lys Glu Lys Pro Asp Ser Val Asp Gly Leu Gln     |     |     |     |      |
|   | 595 | 600 | 605 |      |
| ccg ctg gtg aat gga gta ccc taa ataagctaca taattccgaa gttatatattc   |     |     |     | 1998 |
| Pro Leu Val Asn Gly Val Pro   |     |     |     |      |
| 610   | 615 |     |     |      |
| ctctaccatt tccgtaattc ttactccatt ttagaaaact ttgttaggcc aaagacaaat   |     |     |     | 2058 |
| agtaggcaag atggcacagg gcatgaagtg aacacaaatt ctccaaagaa tttttttgat   |     |     |     | 2118 |
| attggccata atcaacaatc ttccagattt gcacaaaaag atcttgaaat ttgatgcata   |     |     |     | 2178 |
| acttttaagt acacttaaca cttcagggca ggattttact tttatTTTTT aaaaatacta   |     |     |     | 2238 |
| agcagtgatc tttattaact aggaccattt tcctgaattg gactatataa ctcagcagta   |     |     |     | 2298 |
| tgtttcagtc tttcggagta aatcacattt gtgataatca tactagatct ctgtcttcag   |     |     |     | 2358 |
| tctcatttaa atcttacgga tcttcatgaa atgctgtgcc atticatgtc ctgtgtcagt   |     |     |     | 2418 |
| ttatgttttg gtccactttt ccagtatttt agtggaccct gaaatgtgtg tgatgtgaca   |     |     |     | 2478 |
| tttgttattt tcattagcaa aaaaaagagt tgtatgatct gtgccTTTTT tatactttgg   |     |     |     | 2538 |
| caggtaggaa tatttatattt ggatgcagag ttcagggaag ataagttigga aacactaaat |     |     |     | 2598 |
| gttaaagatg tagcaaacc tgtcaaacat tagtactttt tagaagaatg catgctttcc    |     |     |     | 2658 |
| atatTTTTTT cttacataa acatcagctt aggcagtata aaaaatagga cttgtTTTTT    |     |     |     | 2718 |
| gtttttgttt tgttgcactg aagtatgaca aatagtgtta ttggaaggga tgtgtaattt   |     |     |     | 2778 |
| cctcgtatag acaggagaag aaataactat cttttcattt gggagaggct aaagatgttt   |     |     |     | 2838 |
| tcagctactt gcaaactctc ctggtcgaaa gttagtagga tatgcctgct ctttggcctg   |     |     |     | 2898 |
| atgacgaatt tcaactttga aacattttct tttgtcctcc ccaaattttg tcaagttttt   |     |     |     | 2958 |
| tcattcatat ttacattaa agcttatttt ggggagatat gaaggtcac ttcataaata     |     |     |     | 3018 |
| cataacaacc ctcaaaagta tataggtact ttgtctgaga aacattgaaa gcaggttaaa   |     |     |     | 3078 |
| tgttttgtaa ctttgaaata caaagictaa tgcataagca gaaccgaaaa gcagaccgac   |     |     |     | 3138 |

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cacacatcat ctgtaaactg ttcagtttaa aaccaaggga agaattgacct tgtaatgiaa 3618  
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tacaatattt gtgtgcaaaa tgtgtatgtt tttcagttta aagtcatgtt tttaaaatct 4158  
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<210> 1018

<211> 614

<212> PRT

<213> Mus musculus

<400> 1018

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1

5

10

15

Lys Ala Phe Val Lys Asp Val His Glu Asp Ser Ile Thr Val Ala Phe

|   |     |     |
|---|-----|-----|
| 20  | 25  | 30  |
| Glu Asn Asn Trp Gln Pro Glu Arg Gln Ile Pro Phe His Asp Val Arg |     |     |
| 35  | 40  | 45  |
| Phe Pro Pro Pro Val Gly Tyr Asn Lys Asp Ile Asn Glu Ser Asp Glu |     |     |
| 50  | 55  | 60  |
| Val Glu Val Tyr Ser Arg Ala Asn Glu Lys Glu Pro Cys Cys Trp Trp |     |     |
| 65  | 70  | 75  |
| Leu Ala Lys Val Arg Met Ile Lys Gly Glu Phe Tyr Val Ile Glu Tyr |     |     |
| 85  | 90  | 95  |
| Ala Ala Cys Asp Ala Thr Tyr Asn Glu Ile Val Thr Ile Glu Arg Leu |     |     |
| 100   | 105 | 110 |
| Arg Ser Val Asn Pro Asn Lys Pro Ala Thr Lys Asp Thr Phe His Lys |     |     |
| 115   | 120 | 125 |
| Ile Lys Leu Glu Val Pro Glu Asp Leu Arg Gln Met Cys Ala Lys Glu |     |     |
| 130   | 135 | 140 |
| Ser Ala His Lys Asp Phe Lys Lys Ala Val Gly Ala Phe Ser Val Thr |     |     |
| 145   | 150 | 155 |
| Tyr Asp Pro Glu Asn Tyr Gln Leu Val Ile Leu Ser Ile Asn Glu Val |     |     |
| 165   | 170 | 175 |
| Thr Ser Lys Arg Ala His Met Leu Ile Asp Met His Phe Arg Ser Leu |     |     |
| 180   | 185 | 190 |
| Arg Thr Lys Leu Ser Leu Ile Leu Arg Asn Glu Glu Ala Ser Lys Gln |     |     |
| 195   | 200 | 205 |
| Leu Glu Ser Ser Arg Gln Leu Ala Ser Arg Phe His Glu Gln Phe Ile |     |     |
| 210   | 215 | 220 |
| Val Arg Glu Asp Leu Met Gly Leu Ala Ile Gly Thr His Gly Ala Asn |     |     |
| 225   | 230 | 235 |
| Ile Gln Gln Ala Arg Lys Val Pro Gly Val Thr Ala Ile Asp Leu Asp |     |     |
| 245   | 250 | 255 |



Glu Asp Thr Cys Thr Phe His Ile Tyr Gly Glu Asp Gln Asp Ala Val  
 260 265 270  
 Lys Lys Ala Arg Ser Phe Leu Glu Phe Ala Glu Asp Val Ile Gln Val  
 275 280 285  
 Pro Arg Asn Leu Val Gly Lys Val Ile Gly Lys Asn Gly Lys Leu Ile  
 290 295 300  
 Gln Glu Ile Val Asp Lys Ser Gly Val Val Arg Val Arg Ile Glu Ala  
 305 310 315 320  
 Glu Asn Glu Lys Ser Val Pro Gln Glu Glu Glu Ile Met Pro Pro Ser  
 325 330 335  
 Ser Leu Pro Ser Asn Asn Ser Arg Val Gly Pro Asn Ser Ser Glu Glu  
 340 345 350  
 Lys Lys His Leu Asp Thr Lys Glu Asn Thr His Phe Ser Gln Pro Asn  
 355 360 365  
 Ser Thr Lys Val Gln Arg Val Leu Val Val Ser Ser Ile Val Ala Gly  
 370 375 380  
 Gly Pro Gln Lys Pro Glu Pro Lys Ala Trp Gln Gly Met Val Pro Phe  
 385 390 395 400  
 Val Phe Val Gly Thr Lys Asp Ser Ile Ala Asn Ala Thr Val Leu Leu  
 405 410 415  
 Asp Tyr His Leu Asn Tyr Leu Lys Glu Val Asp Gln Leu Arg Leu Glu  
 420 425 430  
 Arg Leu Gln Ile Asp Glu Gln Leu Arg Gln Ile Gly Ala Ser Ser Arg  
 435 440 445  
 Pro Pro Pro Asn Arg Thr Asp Lys Glu Lys Gly Tyr Val Thr Asp Asp  
 450 455 460  
 Gly Gln Gly Met Gly Arg Gly Ser Arg Pro Tyr Arg Asn Arg Gly His  
 465 470 475 480

Gly Arg Arg Gly Pro Gly Tyr Thr Ser Gly Thr Asn Ser Glu Ala Ser  
                     485                    490                    495  
 Asn Ala Ser Glu Thr Glu Ser Asp His Arg Asp Glu Leu Ser Asp Trp  
                     500                    505                    510  
 Ser Leu Ala Pro Thr Glu Glu Glu Arg Glu Ser Phe Leu Arg Arg Gly  
                     515                    520                    525  
 Asp Gly Arg Arg Arg Arg Gly Gly Gly Arg Gly Gln Gly Gly Arg Gly  
                     530                    535                    540  
 Arg Gly Gly Gly Phe Lys Gly Asn Asp Asp His Ser Arg Thr Asp Asn  
 545                    550                    555                    560  
 Arg Pro Arg Asn Pro Arg Glu Ala Lys Gly Arg Thr Ala Asp Gly Ser  
                     565                    570                    575  
 Leu Gln Ser Ala Ser Ser Glu Gly Ser Arg Leu Arg Thr Gly Lys Asp  
                     580                    585                    590  
 Arg Asn Gln Lys Lys Glu Lys Pro Asp Ser Val Asp Gly Leu Gln Pro  
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<210> 1019

<211> 621

<212> DNA

<213> Mus musculus

<400> 1019

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 ctctgatcct tgagtacacc tggctcgagg ctgtcatctt cctcattggt atcatcgtgc 540  
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<210> 1020

<211> 625

<212> DNA

<213> Mus musculus

<400> 1020

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 gcaaagcttg cagacttttg agtcgcaggt caacttacag ataccatggc aaagaggaat 180  
 acagtaatag ggaccccggt ttggatggct cctgaagtta ttcaggaaat tgggtacaac 240  
 tgtgtggcag acatctgggc tctgggaata actgccatag aaatggctga aggaaagccc 300  
 ccataatgctg atatccatcc aatgagggca atattcatga ttcctacaaa ccctcctccc 360  
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 gtaaaaagcc cggagcagag agccacagcc actcagctcc tacagcaccg gtttgtaag 480  
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<210> 1021

<211> 3840

<212> DNA

<213> *Mus musculus*

<220>

<221> CDS

<222> (307).. (2517)

<400> 1021

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caggtggccg gagcgggtga gcggcgsgcg agcggccccc gcgggggggtg tggcgcgaag 180
aatgaccaca aatctagaac caaagaacac gatgcactag cagacagact cgaagctaga 240
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ggggag atg gaa ggt gag gcg gtt gaa gcc att gtg gag gag tct gaa 348
      Met Glu Gly Glu Ala Val Glu Ala Ile Val Glu Glu Ser Glu
          1             5             10
act ttc att aaa gga aaa gaa aga aag act tac cag aga cgc cgg gaa 396
Thr Phe Ile Lys Gly Lys Glu Arg Lys Thr Tyr Gln Arg Arg Arg Glu
  15             20             25             30
ggg ggc cag gaa gaa gat gct tcc cac ctc ccc cag aac cag aca gat 444
Gly Gly Gln Glu Glu Asp Ala Ser His Leu Pro Gln Asn Gln Thr Asp
          35             40             45
ggg ggt gag gtg gtc cag gat gtc aac agc agt gta cag atg gta atg 492
Gly Gly Glu Val Val Gln Asp Val Asn Ser Ser Val Gln Met Val Met
          50             55             60
atg gaa cag ctg gat cct acc ctt ctc cag atg aag act gaa gtc atg 540
Met Glu Gln Leu Asp Pro Thr Leu Leu Gln Met Lys Thr Glu Val Met
          65             70             75
gag ggt aca gtg gct ccg gaa gca gag gct gca gtg gac gat acc cag 588
Glu Gly Thr Val Ala Pro Glu Ala Glu Ala Ala Val Asp Asp Thr Gln

```

|   |     |     |      |
|---|-----|-----|------|
| 80  | 85  | 90  |      |
| atc ata acc ttg cag gtt gta aat atg gag gaa cag ccc att aac ata |     |     | 636  |
| Ile Ile Thr Leu Gln Val Val Asn Met Glu Glu Gln Pro Ile Asn Ile |     |     |      |
| 95  | 100 | 105 | 110  |
| gga gag ctt cag ctt gtc caa gta cct gtt cct gtg acg gta cct gtt |     |     | 684  |
| Gly Glu Leu Gln Leu Val Gln Val Pro Val Pro Val Thr Val Pro Val |     |     |      |
|   | 115 | 120 | 125  |
| gct act act tca gta gaa gaa ctt cag ggg gct tat gag aat gaa gtg |     |     | 732  |
| Ala Thr Thr Ser Val Glu Glu Leu Gln Gly Ala Tyr Glu Asn Glu Val |     |     |      |
|   | 130 | 135 | 140  |
| tct aaa gag ggc ctt gca gaa agt gaa ccg atg ata tgt cac acc tta |     |     | 780  |
| Ser Lys Glu Gly Leu Ala Glu Ser Glu Pro Met Ile Cys His Thr Leu |     |     |      |
|   | 145 | 150 | 155  |
| cct ttg cct gaa gga ttt cag gtg gtg aaa gtg ggg gcc aat gga gaa |     |     | 828  |
| Pro Leu Pro Glu Gly Phe Gln Val Val Lys Val Gly Ala Asn Gly Glu |     |     |      |
|   | 160 | 165 | 170  |
| gtg gag aca cta gag cag ggc gag ctt cct cct cag gaa gac tct agc |     |     | 876  |
| Val Glu Thr Leu Glu Gln Gly Glu Leu Pro Pro Gln Glu Asp Ser Ser |     |     |      |
| 175   | 180 | 185 | 190  |
| tgg caa aaa gac cca gac tat cag cca cca gcc aaa aaa aca aag aaa |     |     | 924  |
| Trp Gln Lys Asp Pro Asp Tyr Gln Pro Pro Ala Lys Lys Thr Lys Lys |     |     |      |
|   | 195 | 200 | 205  |
| acc aaa aag agc aaa ctt cgt tac aca gaa gag ggc aaa gac gtg gat |     |     | 972  |
| Thr Lys Lys Ser Lys Leu Arg Tyr Thr Glu Glu Gly Lys Asp Val Asp |     |     |      |
|   | 210 | 215 | 220  |
| gtg tct gtg tat gat ttt gag gaa gaa cag cag gaa gga ctg ctg tct |     |     | 1020 |
| Val Ser Val Tyr Asp Phe Glu Glu Glu Gln Gln Glu Gly Leu Leu Ser |     |     |      |
|   | 225 | 230 | 235  |
| gag gtt aat gca gag aaa gta gtt ggt aat atg aag cct ccg aag cca |     |     | 1068 |

Glu Val Asn Ala Glu Lys Val Val Gly Asn Met Lys Pro Pro Lys Pro  
 240 245 250  
 acc aaa att aaa aaa aaa ggt gta aag aaa aca ttc cag tgt gag ctt 1116  
 Thr Lys Ile Lys Lys Lys Gly Val Lys Lys Thr Phe Gln Cys Glu Leu  
 255 260 265 270  
 tgc agt tac aca tgt ccc cgg cgt tca aat ttg gat cgt cac atg aaa 1164  
 Cys Ser Tyr Thr Cys Pro Arg Arg Ser Asn Leu Asp Arg His Met Lys  
 275 280 285  
 agc cac act gat gag aga cca cac aaa tgc cat ctg tgt ggc aga gca 1212  
 Ser His Thr Asp Glu Arg Pro His Lys Cys His Leu Cys Gly Arg Ala  
 290 295 300  
 ttc aga aca gtg acc ctc ctg agg aat cat ctg aac aca cac aca ggt 1260  
 Phe Arg Thr Val Thr Leu Leu Arg Asn His Leu Asn Thr His Thr Gly  
 305 310 315  
 act cgt cct cac aag tgc cca gac tgc gat atg gcc ttt gtg acc agt 1308  
 Thr Arg Pro His Lys Cys Pro Asp Cys Asp Met Ala Phe Val Thr Ser  
 320 325 330  
 gga gaa ttg gtg cgg cat cgt cgt tat aaa cac act cat gag aaa cca 1356  
 Gly Glu Leu Val Arg His Arg Arg Tyr Lys His Thr His Glu Lys Pro  
 335 340 345 350  
 ttt aag tgt tcc atg tgt gat tat gcc agt gta gaa gtc agc aaa tta 1404  
 Phe Lys Cys Ser Met Cys Asp Tyr Ala Ser Val Glu Val Ser Lys Leu  
 355 360 365  
 aaa cga cac att cgc tct cat act gga gag cgc ccg ttc cag tgc agt 1452  
 Lys Arg His Ile Arg Ser His Thr Gly Glu Arg Pro Phe Gln Cys Ser  
 370 375 380  
 ttg tgc agt tat gcc agc agg gac aca tac aag ctg aaa agg cat atg 1500  
 Leu Cys Ser Tyr Ala Ser Arg Asp Thr Tyr Lys Leu Lys Arg His Met  
 385 390 395

aga acc cat tca ggg gaa aaa cct tat gaa tgt tat att tgt cac gct 1548  
 Arg Thr His Ser Gly Glu Lys Pro Tyr Glu Cys Tyr Ile Cys His Ala  
 400 405 410  
 cgg ttt acc cag agt ggt acc atg aag atg cac att tta cag aag cac 1596  
 Arg Phe Thr Gln Ser Gly Thr Met Lys Met His Ile Leu Gln Lys His  
 415 420 425 430  
 aca gaa aat gtg gcc aaa ttt cat tgt ccc cat tgt gac act gtc ata 1644  
 Thr Glu Asn Val Ala Lys Phe His Cys Pro His Cys Asp Thr Val Ile  
 435 440 445  
 gcc cga aaa agt gat ttg ggt gtc cac ttg cga aag cag cat tcc tat 1692  
 Ala Arg Lys Ser Asp Leu Gly Val His Leu Arg Lys Gln His Ser Tyr  
 450 455 460  
 att gaa cag ggc aaa aaa tgt cgc tac tgt gat gct gtg ttt cat gag 1740  
 Ile Glu Gln Gly Lys Lys Cys Arg Tyr Cys Asp Ala Val Phe His Glu  
 465 470 475  
 cga tat gct ctc atc cag cat caa aaa tca cac aaa aat gag aag cgc 1788  
 Arg Tyr Ala Leu Ile Gln His Gln Lys Ser His Lys Asn Glu Lys Arg  
 480 485 490  
 ttc aag tgt gac cag tgt gat tat gct tgt aga cag gag cgg cac atg 1836  
 Phe Lys Cys Asp Gln Cys Asp Tyr Ala Cys Arg Gln Glu Arg His Met  
 495 500 505 510  
 atc atg cac aag cgc act cac acg ggg gag aag cct tat gcc tgc agc 1884  
 Ile Met His Lys Arg Thr His Thr Gly Glu Lys Pro Tyr Ala Cys Ser  
 515 520 525  
 cac tgc gac aag acc ttc cgc cag aaa cag ctc ctc gac atg cat ttc 1932  
 His Cys Asp Lys Thr Phe Arg Gln Lys Gln Leu Leu Asp Met His Phe  
 530 535 540  
 aag cgc tat cat gat ccc aac ttt gtc cct gct gcc ttt gtc tgt tcc 1980  
 Lys Arg Tyr His Asp Pro Asn Phe Val Pro Ala Ala Phe Val Cys Ser

|   |     |     |      |
|---|-----|-----|------|
| 545   | 550 | 555 |      |
| aag tgt ggg aaa aca ttc acc cgc cgg aac aca atg gca aga cat gca |     |     | 2028 |
| Lys Cys Gly Lys Thr Phe Thr Arg Arg Asn Thr Met Ala Arg His Ala |     |     |      |
| 560   | 565 | 570 |      |
| gat aac tgt gct ggt cca gat ggc gta gag ggg gaa aat gga ggg gag |     |     | 2076 |
| Asp Asn Cys Ala Gly Pro Asp Gly Val Glu Gly Glu Asn Gly Gly Glu |     |     |      |
| 575   | 580 | 585 | 590  |
| aca aag aag agc aaa cga gga aga aaa aga aag atg cga tct aaa aaa |     |     | 2124 |
| Thr Lys Lys Ser Lys Arg Gly Arg Lys Arg Lys Met Arg Ser Lys Lys |     |     |      |
| 595   | 600 | 605 |      |
| gaa gac tcc tct gac agt gaa gaa aat gct gag ccg gat ctc gat gac |     |     | 2172 |
| Glu Asp Ser Ser Asp Ser Glu Glu Asn Ala Glu Pro Asp Leu Asp Asp |     |     |      |
| 610   | 615 | 620 |      |
| aat gag gag gag gag gag cct gct gta gaa att gaa cct gag cca gag |     |     | 2220 |
| Asn Glu Glu Glu Glu Glu Pro Ala Val Glu Ile Glu Pro Glu Pro Glu |     |     |      |
| 625   | 630 | 635 |      |
| cct cag ccc cag cct ccg cct cca cct cag cct gtg gcc ccg gcc ccc |     |     | 2268 |
| Pro Gln Pro Gln Pro Pro Pro Pro Pro Gln Pro Val Ala Pro Ala Pro |     |     |      |
| 640   | 645 | 650 |      |
| cca cct gcc aag aag aga agg ggg cga cct cct gga aga acc aac cag |     |     | 2316 |
| Pro Pro Ala Lys Lys Arg Arg Gly Arg Pro Pro Gly Arg Thr Asn Gln |     |     |      |
| 655   | 660 | 665 | 670  |
| ccc aaa cag aac cag cca aca gcc atc att cag gtc gaa gat cag aat |     |     | 2364 |
| Pro Lys Gln Asn Gln Pro Thr Ala Ile Ile Gln Val Glu Asp Gln Asn |     |     |      |
| 675   | 680 | 685 |      |
| aca ggt gca att gag aac att att gtt gaa gtc aaa aag gag cca gat |     |     | 2412 |
| Thr Gly Ala Ile Glu Asn Ile Ile Val Glu Val Lys Lys Glu Pro Asp |     |     |      |
| 690   | 695 | 700 |      |
| gcc gag cct gcg gag ggg gaa gaa gag gag gct cag gca gcc acc aca |     |     | 2460 |



Ala Glu Pro Ala Glu Gly Glu Glu Glu Glu Ala Gln Ala Ala Thr Thr

705

710

715

gac gcc ccc aac gga gac ctc acg cct gag atg atc ctc agc atg atg 2508

Asp Ala Pro Asn Gly Asp Leu Thr Pro Glu Met Ile Leu Ser Met Met

720

725

730

gac cgg tga tgctggggcc ttgctcggca ccaggactat tgggctgtgt 2557

Asp Arg

735

ttaaacggcc ccaaacttta atttttcttc tttttttct tggccttggg gaacggcata 2617

attttacacc attttacca acatactgag aacgaaaact tcaaggatga tgttagaaaa 2677

atgtgattta actagaactt gtttgatgtt agcaaatcat ggaatgttct aagtcctga 2737

gggtttactg tgaagtgtt aggacagtgt tgatgcctaa ctagtcttct tagatggaaa 2797

cagagacatt gagccctctc tcttgatcgt aaaccactcc agaacggcca cgggtttccc 2857

agagtcttat ggtcttccca agagaatctt taattgtaa tgcagacttg ggaaggactt 2917

ggactittaa cctggttttg ggttttggtt ttcctgactc cttttgctca gagtctgttg 2977

cacaccagta ggaatggcatg ctacgatcag ttctgtcct gaaagctttg gctctttctt 3037

ggcaaagggt ctggtatggt caagcttgta aataaccctt ttacattttt aatcttttcc 3097

attaattaag aggttgaaaa gaagtacagt gtaagaaaac ccagcatctt aattatttgc 3157

aaattaagggt gccacagaca cagacttagt ggtatgtaa tgttgactcg gatcacaatc 3217

atgtagcaga gggcactggg cctgttgctt gccagtcatg gacaaccatg tgaaaaatcc 3277

tgatttccag ctcatggagc cagcgittga accttggaac aaataaatct catttatgat 3337

ttctcatcaa cttttctttt ggtctgtttg tagctgaatg ttacattttt taaaaatctc 3397

tgtccaagcc agaagagttg attatgagtg gccacagcaa ccttggaag ctgggccaaa 3457

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gtgtgatatt ttccattatt ttaggatgcc aacatgagac ctgtaataaa atatgtaatg 3757

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caggcaaaaaa aaaaaaaaaa aaa

3840

&lt;210&gt; 1022

&lt;211&gt; 736

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 1022

Met Glu Gly Glu Ala Val Glu Ala Ile Val Glu Glu Ser Glu Thr Phe  
 1 5 10 15  
 Ile Lys Gly Lys Glu Arg Lys Thr Tyr Gln Arg Arg Arg Glu Gly Gly  
 20 25 30  
 Gln Glu Glu Asp Ala Ser His Leu Pro Gln Asn Gln Thr Asp Gly Gly  
 35 40 45  
 Glu Val Val Gln Asp Val Asn Ser Ser Val Gln Met Val Met Met Glu  
 50 55 60  
 Gln Leu Asp Pro Thr Leu Leu Gln Met Lys Thr Glu Val Met Glu Gly  
 65 70 75 80  
 Thr Val Ala Pro Glu Ala Glu Ala Ala Val Asp Asp Thr Gln Ile Ile  
 85 90 95  
 Thr Leu Gln Val Val Asn Met Glu Glu Gln Pro Ile Asn Ile Gly Glu  
 100 105 110  
 Leu Gln Leu Val Gln Val Pro Val Pro Val Thr Val Pro Val Ala Thr  
 115 120 125  
 Thr Ser Val Glu Glu Leu Gln Gly Ala Tyr Glu Asn Glu Val Ser Lys  
 130 135 140  
 Glu Gly Leu Ala Glu Ser Glu Pro Met Ile Cys His Thr Leu Pro Leu  
 145 150 155 160  
 Pro Glu Gly Phe Gln Val Val Lys Val Gly Ala Asn Gly Glu Val Glu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 165 |     | 170 |     | 175 |     |     |     |     |     |     |     |     |     |     |
| Thr | Leu | Glu | Gln | Gly | Glu | Leu | Pro | Pro | Gln | Glu | Asp | Ser | Ser | Trp | Gln |
|     | 180 |     | 185 |     | 190 |     |     |     |     |     |     |     |     |     |     |
| Lys | Asp | Pro | Asp | Tyr | Gln | Pro | Pro | Ala | Lys | Lys | Thr | Lys | Lys | Thr | Lys |
|     | 195 |     | 200 |     | 205 |     |     |     |     |     |     |     |     |     |     |
| Lys | Ser | Lys | Leu | Arg | Tyr | Thr | Glu | Glu | Gly | Lys | Asp | Val | Asp | Val | Ser |
|     | 210 |     | 215 |     | 220 |     |     |     |     |     |     |     |     |     |     |
| Val | Tyr | Asp | Phe | Glu | Glu | Glu | Gln | Gln | Glu | Gly | Leu | Leu | Ser | Glu | Val |
| 225 |     |     | 230 |     | 235 |     |     |     |     |     |     |     |     | 240 |     |
| Asn | Ala | Glu | Lys | Val | Val | Gly | Asn | Met | Lys | Pro | Pro | Lys | Pro | Thr | Lys |
|     | 245 |     | 250 |     | 255 |     |     |     |     |     |     |     |     |     |     |
| Ile | Lys | Lys | Lys | Gly | Val | Lys | Lys | Thr | Phe | Gln | Cys | Glu | Leu | Cys | Ser |
|     | 260 |     | 265 |     | 270 |     |     |     |     |     |     |     |     |     |     |
| Tyr | Thr | Cys | Pro | Arg | Arg | Ser | Asn | Leu | Asp | Arg | His | Met | Lys | Ser | His |
|     | 275 |     | 280 |     | 285 |     |     |     |     |     |     |     |     |     |     |
| Thr | Asp | Glu | Arg | Pro | His | Lys | Cys | His | Leu | Cys | Gly | Arg | Ala | Phe | Arg |
|     | 290 |     | 295 |     | 300 |     |     |     |     |     |     |     |     |     |     |
| Thr | Val | Thr | Leu | Leu | Arg | Asn | His | Leu | Asn | Thr | His | Thr | Gly | Thr | Arg |
| 305 |     |     | 310 |     | 315 |     |     |     |     |     |     |     |     | 320 |     |
| Pro | His | Lys | Cys | Pro | Asp | Cys | Asp | Met | Ala | Phe | Val | Thr | Ser | Gly | Glu |
|     | 325 |     | 330 |     | 335 |     |     |     |     |     |     |     |     |     |     |
| Leu | Val | Arg | His | Arg | Arg | Tyr | Lys | His | Thr | His | Glu | Lys | Pro | Phe | Lys |
|     | 340 |     | 345 |     | 350 |     |     |     |     |     |     |     |     |     |     |
| Cys | Ser | Met | Cys | Asp | Tyr | Ala | Ser | Val | Glu | Val | Ser | Lys | Leu | Lys | Arg |
|     | 355 |     | 360 |     | 365 |     |     |     |     |     |     |     |     |     |     |
| His | Ile | Arg | Ser | His | Thr | Gly | Glu | Arg | Pro | Phe | Gln | Cys | Ser | Leu | Cys |
|     | 370 |     | 375 |     | 380 |     |     |     |     |     |     |     |     |     |     |
| Ser | Tyr | Ala | Ser | Arg | Asp | Thr | Tyr | Lys | Leu | Lys | Arg | His | Met | Arg | Thr |
| 385 |     |     | 390 |     | 395 |     |     |     |     |     |     |     |     | 400 |     |

His Ser Gly Glu Lys Pro Tyr Glu Cys Tyr Ile Cys His Ala Arg Phe  
 405 410 415  
 Thr Gln Ser Gly Thr Met Lys Met His Ile Leu Gln Lys His Thr Glu  
 420 425 430  
 Asn Val Ala Lys Phe His Cys Pro His Cys Asp Thr Val Ile Ala Arg  
 435 440 445  
 Lys Ser Asp Leu Gly Val His Leu Arg Lys Gln His Ser Tyr Ile Glu  
 450 455 460  
 Gln Gly Lys Lys Cys Arg Tyr Cys Asp Ala Val Phe His Glu Arg Tyr  
 465 470 475 480  
 Ala Leu Ile Gln His Gln Lys Ser His Lys Asn Glu Lys Arg Phe Lys  
 485 490 495  
 Cys Asp Gln Cys Asp Tyr Ala Cys Arg Gln Glu Arg His Met Ile Met  
 500 505 510  
 His Lys Arg Thr His Thr Gly Glu Lys Pro Tyr Ala Cys Ser His Cys  
 515 520 525  
 Asp Lys Thr Phe Arg Gln Lys Gln Leu Leu Asp Met His Phe Lys Arg  
 530 535 540  
 Tyr His Asp Pro Asn Phe Val Pro Ala Ala Phe Val Cys Ser Lys Cys  
 545 550 555 560  
 Gly Lys Thr Phe Thr Arg Arg Asn Thr Met Ala Arg His Ala Asp Asn  
 565 570 575  
 Cys Ala Gly Pro Asp Gly Val Glu Gly Glu Asn Gly Gly Glu Thr Lys  
 580 585 590  
 Lys Ser Lys Arg Gly Arg Lys Arg Lys Met Arg Ser Lys Lys Glu Asp  
 595 600 605  
 Ser Ser Asp Ser Glu Glu Asn Ala Glu Pro Asp Leu Asp Asp Asn Glu  
 610 615 620  
 Glu Glu Glu Glu Pro Ala Val Glu Ile Glu Pro Glu Pro Glu Pro Gln

625                      630                      635                      640  
 Pro Gln Pro Pro Pro Pro Pro Gln Pro Val Ala Pro Ala Pro Pro Pro  
                          645                      650                      655  
 Ala Lys Lys Arg Arg Gly Arg Pro Pro Gly Arg Thr Asn Gln Pro Lys  
                          660                      665                      670  
 Gln Asn Gln Pro Thr Ala Ile Ile Gln Val Glu Asp Gln Asn Thr Gly  
                          675                      680                      685  
 Ala Ile Glu Asn Ile Ile Val Glu Val Lys Lys Glu Pro Asp Ala Glu  
                          690                      695                      700  
 Pro Ala Glu Gly Glu Glu Glu Glu Ala Gln Ala Ala Thr Thr Asp Ala  
 705                      710                      715                      720  
 Pro Asn Gly Asp Leu Thr Pro Glu Met Ile Leu Ser Met Met Asp Arg  
                          725                      730                      735

<210> 1023

<211> 678

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (1).. (678)

<400> 1023

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 Met Ala Ala Leu Ala Ser Ser Leu Ile Arg Gln Lys Arg Glu Val Arg  
       1                      5                      10                      15  
 gag ccc ggg ggc agc cgg ccc gtg tgc gcg cag cgg cgc gtg tgt ccc    96  
 Glu Pro Gly Gly Ser Arg Pro Val Ser Ala Gln Arg Arg Val Cys Pro

|   |     |     |     |
|---|-----|-----|-----|
| 20  | 25  | 30  |     |
| cgc ggt acc aag tca ctt tgc cag aaa cag ctc ctc atc ctg ctg tcc |     |     | 144 |
| Arg Gly Thr Lys Ser Leu Cys Gln Lys Gln Leu Leu Ile Leu Leu Ser |     |     |     |
| 35  | 40  | 45  |     |
| aag gtg cga ctg tgc ggg ggg cgt ccc acg cga cag gac cgc ggc cca |     |     | 192 |
| Lys Val Arg Leu Cys Gly Gly Arg Pro Thr Arg Gln Asp Arg Gly Pro |     |     |     |
| 50  | 55  | 60  |     |
| gag cct cag ctc aaa ggc atc gtc acc aaa ctg ttc tgc cgc cag ggt |     |     | 240 |
| Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu Phe Cys Arg Gln Gly |     |     |     |
| 65  | 70  | 75  | 80  |
| ttc tac ctc cag gcg aat ccc gat ggg agt atc cag ggc acc cca gag |     |     | 288 |
| Phe Tyr Leu Gln Ala Asn Pro Asp Gly Ser Ile Gln Gly Thr Pro Glu |     |     |     |
| 85  | 90  | 95  |     |
| gac acc agc tcc ttc acc cac ttc aat ctg att cct gtg gga ctc cgt |     |     | 336 |
| Asp Thr Ser Ser Phe Thr His Phe Asn Leu Ile Pro Val Gly Leu Arg |     |     |     |
| 100   | 105 | 110 |     |
| gtg gtc acc atc cag agt gcc aag ctg ggt cac tac atg gcc atg aac |     |     | 384 |
| Val Val Thr Ile Gln Ser Ala Lys Leu Gly His Tyr Met Ala Met Asn |     |     |     |
| 115   | 120 | 125 |     |
| gct gag ggg cta ttg tac agc tgc cca cat ttc aca gca gag tgt cgc |     |     | 432 |
| Ala Glu Gly Leu Leu Tyr Ser Ser Pro His Phe Thr Ala Glu Cys Arg |     |     |     |
| 130   | 135 | 140 |     |
| ttt aag gag tgc gtc ttt gag aat tac tat gtc ctg tat gcc tct gct |     |     | 480 |
| Phe Lys Glu Cys Val Phe Glu Asn Tyr Tyr Val Leu Tyr Ala Ser Ala |     |     |     |
| 145   | 150 | 155 | 160 |
| ctc tac cgt cag cgt cgt tct ggc cgg gcc tgg tac cta ggc ctg gac |     |     | 528 |
| Leu Tyr Arg Gln Arg Arg Ser Gly Arg Ala Trp Tyr Leu Gly Leu Asp |     |     |     |
| 165   | 170 | 175 |     |
| aag gaa ggc cgg gtc atg aag gga aac cga gtc aag aag acc aag gca |     |     | 576 |

Lys Glu Gly Arg Val Met Lys Gly Asn Arg Val Lys Lys Thr Lys Ala  
                   180                  185                  190  
 gct gcc cac ttt gtg ccc aag ctc ctg gag gtg gcc atg tac cgg gag 624  
 Ala Ala His Phe Val Pro Lys Leu Leu Glu Val Ala Met Tyr Arg Glu  
                   195                  200                  205  
 cct tct ctc cac agt gtt cct gag acc tcc cct tcc agt ccc cct gcc 672  
 Pro Ser Leu His Ser Val Pro Glu Thr Ser Pro Ser Ser Pro Pro Ala  
                   210                  215                  220  
 cac tga 678  
 His  
 225

<210> 1024

<211> 225

<212> PRT

<213> Mus musculus

<400> 1024

Met Ala Ala Leu Ala Ser Ser Leu Ile Arg Gln Lys Arg Glu Val Arg  
           1                  5                  10                  15  
 Glu Pro Gly Gly Ser Arg Pro Val Ser Ala Gln Arg Arg Val Cys Pro  
                   20                  25                  30  
 Arg Gly Thr Lys Ser Leu Cys Gln Lys Gln Leu Leu Ile Leu Leu Ser  
                   35                  40                  45  
 Lys Val Arg Leu Cys Gly Gly Arg Pro Thr Arg Gln Asp Arg Gly Pro  
                   50                  55                  60  
 Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu Phe Cys Arg Gln Gly  
                   65                  70                  75                  80  
 Phe Tyr Leu Gln Ala Asn Pro Asp Gly Ser Ile Gln Gly Thr Pro Glu

|   |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
|   | 85  |     | 90  |     | 95  |
| Asp Thr Ser Ser Phe Thr His Phe Asn Leu Ile Pro Val Gly Leu Arg |     |     |     |     |     |
|   | 100 |     | 105 |     | 110 |
| Val Val Thr Ile Gln Ser Ala Lys Leu Gly His Tyr Met Ala Met Asn |     |     |     |     |     |
|   | 115 |     | 120 |     | 125 |
| Ala Glu Gly Leu Leu Tyr Ser Ser Pro His Phe Thr Ala Glu Cys Arg |     |     |     |     |     |
|   | 130 |     | 135 |     | 140 |
| Phe Lys Glu Cys Val Phe Glu Asn Tyr Tyr Val Leu Tyr Ala Ser Ala |     |     |     |     |     |
| 145   |     | 150 |     | 155 | 160 |
| Leu Tyr Arg Gln Arg Arg Ser Gly Arg Ala Trp Tyr Leu Gly Leu Asp |     |     |     |     |     |
|   | 165 |     | 170 |     | 175 |
| Lys Glu Gly Arg Val Met Lys Gly Asn Arg Val Lys Lys Thr Lys Ala |     |     |     |     |     |
|   | 180 |     | 185 |     | 190 |
| Ala Ala His Phe Val Pro Lys Leu Leu Glu Val Ala Met Tyr Arg Glu |     |     |     |     |     |
|   | 195 |     | 200 |     | 205 |
| Pro Ser Leu His Ser Val Pro Glu Thr Ser Pro Ser Ser Pro Pro Ala |     |     |     |     |     |
|   | 210 |     | 215 |     | 220 |
| His   |     |     |     |     |     |
| 225   |     |     |     |     |     |

&lt;210&gt; 1025

&lt;211&gt; 1505

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (44).. (1252)



&lt;400&gt; 1025

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ctgaactcag ctgctgcctgc ttccagcact tccccctac aca atg ctg cct gct 55
                                     Met Leu Pro Ala
                                     1
gcc cta acc tcc ttt ctg ggg cca ttc ctt ttg gcc tgg gtg ctg cct 103
Ala Leu Thr Ser Phe Leu Gly Pro Phe Leu Leu Ala Trp Val Leu Pro
    5              10              15              20
ctt gcc cga ggc cag acc ccc aac tac acg aga cct gtg ttc ctg tgc 151
Leu Ala Arg Gly Gln Thr Pro Asn Tyr Thr Arg Pro Val Phe Leu Cys
              25              30              35
gga ggg gac gtg acc ggg gag tca ggt tac gtg gca agt gag ggt ttc 199
Gly Gly Asp Val Thr Gly Glu Ser Gly Tyr Val Ala Ser Glu Gly Phe
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Pro Asn Leu Tyr Pro Pro Asn Lys Lys Cys Ile Trp Thr Ile Thr Val
              55              60              65
ccc gag ggc cag act gtg tcc ctg tcc ttc cga gtc ttc gat atg gag 295
Pro Glu Gly Gln Thr Val Ser Leu Ser Phe Arg Val Phe Asp Met Glu
              70              75              80
ctc cac cct tcc tgc cgc tac gat gct ctg gag gtc ttt gct ggc tct 343
Leu His Pro Ser Cys Arg Tyr Asp Ala Leu Glu Val Phe Ala Gly Ser
              85              90              95              100
ggc acc tca ggc cag cga ctt gga cgc ttc tgc ggc acc ttc agg cct 391
Gly Thr Ser Gly Gln Arg Leu Gly Arg Phe Cys Gly Thr Phe Arg Pro
              105              110              115
gca cct gta gtc gca cct ggc aac caa gtg act tta agg atg aca act 439
Ala Pro Val Val Ala Pro Gly Asn Gln Val Thr Leu Arg Met Thr Thr
              120              125              130
gac gag ggc acc ggg gga cga ggc ttc ctg ctc tgg tac agc ggc cgg 487

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Asp Glu Gly Thr Gly Gly Arg Gly Phe Leu Leu Trp Tyr Ser Gly Arg  
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Pro Pro Thr Lys Pro Lys Ser Gln Pro Ala Glu Thr Pro Glu Ala Ser
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cct gct acc cag gca acc cca gtg gcc cca gct gcc ccc agc atc acc 1063
Pro Ala Thr Gln Ala Thr Pro Val Ala Pro Ala Ala Pro Ser Ile Thr
      325              330              335              340

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Ser Ser Ser Leu Val Val Thr Gly Thr Val Lys Thr Met Val Arg Gly
      360              365              370

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Pro Gly Glu Gly Leu Thr Val Thr Val Ser Leu Leu Gly Val Tyr Lys
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&lt;210&gt; 1026

&lt;211&gt; 402

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 1026

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 50 55 60  
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 65 70 75 80  
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 Tyr Ser Gly Arg Ala Thr Ser Gly Thr Glu His Gln Phe Cys Gly Gly  
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 Arg Met Glu Lys Ala Gln Gly Thr Leu Thr Thr Pro Asn Trp Pro Glu  
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 180 185 190  
 Ser Asn Gln Val Ile Met Leu Thr Phe Gly Lys Phe Asp Val Glu Pro

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|---|-----|-----|
| 195   | 200 | 205 |
| Asp Thr Tyr Cys Arg Tyr Asp Ser Val Ser Val Phe Asn Gly Ala Val |     |     |
| 210   | 215 | 220 |
| Ser Asp Asp Ser Lys Arg Leu Gly Lys Phe Cys Gly Asp Lys Ala Pro |     |     |
| 225   | 230 | 235 |
| Ser Pro Ile Ser Ser Glu Gly Asn Glu Leu Leu Val Gln Phe Val Ser |     |     |
| 245   | 250 | 255 |
| Asp Leu Ser Val Thr Ala Asp Gly Phe Ser Ala Ser Tyr Arg Thr Leu |     |     |
| 260   | 265 | 270 |
| Pro Arg Asp Ala Val Glu Lys Glu Ser Ala Leu Ser Pro Gly Glu Asp |     |     |
| 275   | 280 | 285 |
| Val Gln Arg Gly Pro Gln Ser Arg Ser Asp Pro Lys Thr Gly Thr Gly |     |     |
| 290   | 295 | 300 |
| Pro Lys Val Lys Pro Pro Thr Lys Pro Lys Ser Gln Pro Ala Glu Thr |     |     |
| 305   | 310 | 315 |
| Pro Glu Ala Ser Pro Ala Thr Gln Ala Thr Pro Val Ala Pro Ala Ala |     |     |
| 325   | 330 | 335 |
| Pro Ser Ile Thr Cys Pro Lys Gln Tyr Lys Arg Ser Gly Thr Leu Gln |     |     |
| 340   | 345 | 350 |
| Ser Asn Phe Cys Ser Ser Ser Leu Val Val Thr Gly Thr Val Lys Thr |     |     |
| 355   | 360 | 365 |
| Met Val Arg Gly Pro Gly Glu Gly Leu Thr Val Thr Val Ser Leu Leu |     |     |
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| Gly Val Tyr Lys Thr Gly Asp Trp Thr Cys Pro Leu Arg Pro Val Ala |     |     |
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| Pro Leu   |     | 400 |

&lt;210&gt; 1027

&lt;211&gt; 8212

&lt;212&gt; DNA

<213> *Mus musculus*

&lt;400&gt; 1027

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&lt;211&gt; 4270

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&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

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&lt;400&gt; 1028

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 Pro Gly Ala Val Gly Ala Pro Gly Pro Gln Gly Phe Gln Gly Pro Ala  
 110 115 120  
 ggt gaa cct ggt gag cct ggt caa acg ggt cct gca ggt ccc cgt ggt 496  
 Gly Glu Pro Gly Glu Pro Gly Gln Thr Gly Pro Ala Gly Pro Arg Gly  
 125 130 135  
 cca gct ggc tct cct ggc aag gct ggt gag gat ggt cac cct gga aaa 544  
 Pro Ala Gly Ser Pro Gly Lys Ala Gly Glu Asp Gly His Pro Gly Lys  
 140 145 150 155  
 ccc gga aga cct ggg gag aga gga gtc gtt gga cca cag ggt gct cgt 592  
 Pro Gly Arg Pro Gly Glu Arg Gly Val Val Gly Pro Gln Gly Ala Arg  
 160 165 170  
 ggt ttc ccc ggg act cct gga ctt cct ggc ttc aaa ggc gtg aaa gga 640  
 Gly Phe Pro Gly Thr Pro Gly Leu Pro Gly Phe Lys Gly Val Lys Gly  
 175 180 185  
 cac agt ggt atg gat gga tta aag gga cag cct ggt gca cag ggt gtg 688  
 His Ser Gly Met Asp Gly Leu Lys Gly Gln Pro Gly Ala Gln Gly Val  
 190 195 200  
 aag ggt gaa ccc ggt gcc cct gga gag aat gga act cca ggt caa gca 736  
 Lys Gly Glu Pro Gly Ala Pro Gly Glu Asn Gly Thr Pro Gly Gln Ala  
 205 210 215  
 gga gcc cga ggg ctt cct ggt gag aga ggg cgt gtc gga gct cct ggt 784  
 Gly Ala Arg Gly Leu Pro Gly Glu Arg Gly Arg Val Gly Ala Pro Gly  
 220 225 230 235  
 cca gct ggt gcc cga ggc agt gat gga agc gtt ggc ccc gtc ggc cct 832  
 Pro Ala Gly Ala Arg Gly Ser Asp Gly Ser Val Gly Pro Val Gly Pro  
 240 245 250  
 gct ggt ccc att ggg tct gct gga ccc cct ggt ttc cca ggt gct cct 880  
 Ala Gly Pro Ile Gly Ser Ala Gly Pro Pro Gly Phe Pro Gly Ala Pro

|   |     |     |      |
|---|-----|-----|------|
| 255   | 260 | 265 |      |
| ggt ccc aag ggt gaa ctt ggg ccc gtt ggt aac cct ggc cct gct ggt |     |     | 928  |
| Gly Pro Lys Gly Glu Leu Gly Pro Val Gly Asn Pro Gly Pro Ala Gly |     |     |      |
| 270   | 275 | 280 |      |
| cct gct ggt ccc cgt ggt gaa gtg ggt ctt cca ggt ctt tct ggc cct |     |     | 976  |
| Pro Ala Gly Pro Arg Gly Glu Val Gly Leu Pro Gly Leu Ser Gly Pro |     |     |      |
| 285   | 290 | 295 |      |
| gtt gga cct cct ggc aac cct gga aca aat ggg ctc act ggc gcc aag |     |     | 1024 |
| Val Gly Pro Pro Gly Asn Pro Gly Thr Asn Gly Leu Thr Gly Ala Lys |     |     |      |
| 300   | 305 | 310 | 315  |
| ggt gct act gga ctc cct ggt gtc gct ggg gct ccc ggt ctc cct ggc |     |     | 1072 |
| Gly Ala Thr Gly Leu Pro Gly Val Ala Gly Ala Pro Gly Leu Pro Gly |     |     |      |
| 320   | 325 | 330 |      |
| ccc cgt ggt att cct ggc ccc gct ggt gct gct ggt gct aca ggt gcc |     |     | 1120 |
| Pro Arg Gly Ile Pro Gly Pro Ala Gly Ala Ala Gly Ala Thr Gly Ala |     |     |      |
| 335   | 340 | 345 |      |
| aga gga ctt gtt ggt gag cct ggt cct gct ggc tcc aaa gga gaa tcc |     |     | 1168 |
| Arg Gly Leu Val Gly Glu Pro Gly Pro Ala Gly Ser Lys Gly Glu Ser |     |     |      |
| 350   | 355 | 360 |      |
| ggt aac aag ggt gag cct ggc tct gtt gga gcc caa ggt cct cct ggt |     |     | 1216 |
| Gly Asn Lys Gly Glu Pro Gly Ser Val Gly Ala Gln Gly Pro Pro Gly |     |     |      |
| 365   | 370 | 375 |      |
| ccc agc ggt gaa gaa gga aag aga ggg tct ccc gga gaa gct gga tct |     |     | 1264 |
| Pro Ser Gly Glu Glu Gly Lys Arg Gly Ser Pro Gly Glu Ala Gly Ser |     |     |      |
| 380   | 385 | 390 | 395  |
| gct ggc cct gca ggg cct cca ggg ctt aga ggc agc cca ggt tct cga |     |     | 1312 |
| Ala Gly Pro Ala Gly Pro Pro Gly Leu Arg Gly Ser Pro Gly Ser Arg |     |     |      |
| 400   | 405 | 410 |      |
| ggt ctt cct gga gct gat ggc aga gct ggt gta atg ggt cct cct ggc |     |     | 1360 |

|   |      |
|---|------|
| Gly Leu Pro Gly Ala Asp Gly Arg Ala Gly Val Met Gly Pro Pro Gly |      |
| 415   | 420  |
| 425   |      |
| aat cgt ggt tca acc ggc cct gct gga atc cga ggt cct aat gga gat | 1408 |
| Asn Arg Gly Ser Thr Gly Pro Ala Gly Ile Arg Gly Pro Asn Gly Asp |      |
| 430   | 435  |
| 440   |      |
| gcc ggt cga cct ggg gaa cct ggt ctc atg gga ccc aga ggt ctt cct | 1456 |
| Ala Gly Arg Pro Gly Glu Pro Gly Leu Met Gly Pro Arg Gly Leu Pro |      |
| 445   | 450  |
| 455   |      |
| ggg tct cct gga aat gtt ggc cca tct ggt aaa gaa ggc cct gtg ggt | 1504 |
| Gly Ser Pro Gly Asn Val Gly Pro Ser Gly Lys Glu Gly Pro Val Gly |      |
| 460   | 465  |
| 470   | 475  |
| ctc cct ggc att gat ggc aga cct ggc cca atc ggc cca gct gga cca | 1552 |
| Leu Pro Gly Ile Asp Gly Arg Pro Gly Pro Ile Gly Pro Ala Gly Pro |      |
| 480   | 485  |
| 490   |      |
| aga ggt gaa gct ggc aac atc gga ttc cct gga ccc aaa ggc ccc tct | 1600 |
| Arg Gly Glu Ala Gly Asn Ile Gly Phe Pro Gly Pro Lys Gly Pro Ser |      |
| 495   | 500  |
| 505   |      |
| ggt gat cct ggc aaa cct ggt gag aga gga cac ccc ggt ctt gct ggt | 1648 |
| Gly Asp Pro Gly Lys Pro Gly Glu Arg Gly His Pro Gly Leu Ala Gly |      |
| 510   | 515  |
| 520   |      |
| gct cgg gga gct cca gga ccc gat ggc aac aat gga gct cag ggc ccc | 1696 |
| Ala Arg Gly Ala Pro Gly Pro Asp Gly Asn Asn Gly Ala Gln Gly Pro |      |
| 525   | 530  |
| 535   |      |
| cct gga ccc cag ggt gtt caa ggt ggc aaa ggt gaa caa ggc cct gct | 1744 |
| Pro Gly Pro Gln Gly Val Gln Gly Gly Lys Gly Glu Gln Gly Pro Ala |      |
| 540   | 545  |
| 550   | 555  |
| ggt cct cct ggc ttc cag ggt ctc cca ggt ccc tca ggt act act gga | 1792 |
| Gly Pro Pro Gly Phe Gln Gly Leu Pro Gly Pro Ser Gly Thr Thr Gly |      |
| 560   | 565  |
| 570   |      |

|   |      |
|---|------|
| gaa gtt ggc aag ccc gga gaa agg ggt ctt cct ggt gaa ttc ggt ctc | 1840 |
| Glu Val Gly Lys Pro Gly Glu Arg Gly Leu Pro Gly Glu Phe Gly Leu |      |
| 575 580 585   |      |
| cct ggt cct gct ggt cca aga gga gaa cgt ggt acc ccg ggt gag agt | 1888 |
| Pro Gly Pro Ala Gly Pro Arg Gly Glu Arg Gly Thr Pro Gly Glu Ser |      |
| 590 595 600   |      |
| gga gct gct ggc cct tct ggt cct att gga agc cga ggt ccc agt gga | 1936 |
| Gly Ala Ala Gly Pro Ser Gly Pro Ile Gly Ser Arg Gly Pro Ser Gly |      |
| 605 610 615   |      |
| gcc cca ggg cct gat gga aac aag ggt gaa gct ggt gca gtc ggt gct | 1984 |
| Ala Pro Gly Pro Asp Gly Asn Lys Gly Glu Ala Gly Ala Val Gly Ala |      |
| 620 625 630 635   |      |
| cca ggc agt gct ggt gcc tct ggg cct ggt ggg ctt cca gga gag agg | 2032 |
| Pro Gly Ser Ala Gly Ala Ser Gly Pro Gly Gly Leu Pro Gly Glu Arg |      |
| 640 645 650   |      |
| ggt gct gct ggc ata cct ggg ggc aaa gga gaa aag ggt gaa act ggt | 2080 |
| Gly Ala Ala Gly Ile Pro Gly Gly Lys Gly Glu Lys Gly Glu Thr Gly |      |
| 655 660 665   |      |
| ctc cga ggt gac act ggc aac act ggt aga gat ggt gct cgt ggc att | 2128 |
| Leu Arg Gly Asp Thr Gly Asn Thr Gly Arg Asp Gly Ala Arg Gly Ile |      |
| 670 675 680   |      |
| cct ggt gct gta ggt gcc cct ggt cct gct ggg gcc tca ggt gac cgg | 2176 |
| Pro Gly Ala Val Gly Ala Pro Gly Pro Ala Gly Ala Ser Gly Asp Arg |      |
| 685 690 695   |      |
| ggt gaa gct ggt gct gcc ggt cct tct ggc cca gct ggt cct cgg ggt | 2224 |
| Gly Glu Ala Gly Ala Ala Gly Pro Ser Gly Pro Ala Gly Pro Arg Gly |      |
| 700 705 710 715   |      |
| agc cct ggt gaa cgt ggt gaa gtt ggc cct gct ggc ccc aat gga ttt | 2272 |
| Ser Pro Gly Glu Arg Gly Glu Val Gly Pro Ala Gly Pro Asn Gly Phe |      |

|   |     |     |      |
|---|-----|-----|------|
| 720   | 725 | 730 |      |
| gct ggt cct gct ggt gct gct ggc caa ccc ggt gct aaa gga gag aag |     |     | 2320 |
| Ala Gly Pro Ala Gly Ala Ala Gly Gln Pro Gly Ala Lys Gly Glu Lys |     |     |      |
| 735   | 740 | 745 |      |
| gga acc aaa ggg cct aag ggt gaa aat ggc att gtt ggt cca acc ggg |     |     | 2368 |
| Gly Thr Lys Gly Pro Lys Gly Glu Asn Gly Ile Val Gly Pro Thr Gly |     |     |      |
| 750   | 755 | 760 |      |
| tct gtt gga gct gct ggc cca tct ggt cct aat ggc cca cct ggt cct |     |     | 2416 |
| Ser Val Gly Ala Ala Gly Pro Ser Gly Pro Asn Gly Pro Pro Gly Pro |     |     |      |
| 765   | 770 | 775 |      |
| gtt gga agt cgt ggt gat gga ggg ccc cct ggt atg act ggc ttc cct |     |     | 2464 |
| Val Gly Ser Arg Gly Asp Gly Gly Pro Pro Gly Met Thr Gly Phe Pro |     |     |      |
| 780   | 785 | 790 | 795  |
| ggt gct gct gga cgg act ggt ccc ccc gga ccc agt ggt att gct ggc |     |     | 2512 |
| Gly Ala Ala Gly Arg Thr Gly Pro Pro Gly Pro Ser Gly Ile Ala Gly |     |     |      |
| 800   | 805 | 810 |      |
| ccc cct ggc ccc cct ggt gct gct gga aag gaa ggg att cgt ggt ccc |     |     | 2560 |
| Pro Pro Gly Pro Pro Gly Ala Ala Gly Lys Glu Gly Ile Arg Gly Pro |     |     |      |
| 815   | 820 | 825 |      |
| cgt ggc gac caa ggt cca gtt ggc cga act gga gaa aca ggt gca tct |     |     | 2608 |
| Arg Gly Asp Gln Gly Pro Val Gly Arg Thr Gly Glu Thr Gly Ala Ser |     |     |      |
| 830   | 835 | 840 |      |
| gga ccc cct gga ttt gtt ggt gaa aag ggt ccc tct gga gaa cct ggt |     |     | 2656 |
| Gly Pro Pro Gly Phe Val Gly Glu Lys Gly Pro Ser Gly Glu Pro Gly |     |     |      |
| 845   | 850 | 855 |      |
| acc gca gga gcc cct ggt acc gca ggt cct cag ggt ctt ctt ggt gct |     |     | 2704 |
| Thr Ala Gly Ala Pro Gly Thr Ala Gly Pro Gln Gly Leu Leu Gly Ala |     |     |      |
| 860   | 865 | 870 | 875  |
| ccc ggt att ctg ggt ctc cct ggc tct aga ggt gaa cgt ggt ctg cca |     |     | 2752 |



Pro Gly Ile Leu Gly Leu Pro Gly Ser Arg Gly Glu Arg Gly Leu Pro  
                     880                    885                    890  
 ggt att gct ggt gct ctg ggt gaa cct ggt cct ctg ggc atc tca ggc 2800  
 Gly Ile Ala Gly Ala Leu Gly Glu Pro Gly Pro Leu Gly Ile Ser Gly  
                     895                    900                    905  
 cct cct ggt gcc cgt ggt ccc cct ggt gcc gtg ggc agc cct gga gtt 2848  
 Pro Pro Gly Ala Arg Gly Pro Pro Gly Ala Val Gly Ser Pro Gly Val  
                     910                    915                    920  
 aat ggt gcc cct ggt gaa gct ggt cgt gat ggt aac cct ggc agc gat 2896  
 Asn Gly Ala Pro Gly Glu Ala Gly Arg Asp Gly Asn Pro Gly Ser Asp  
                     925                    930                    935  
 ggt ccc cca ggt cgt gat ggt cag cct gga cac aag gga gag cgt ggt 2944  
 Gly Pro Pro Gly Arg Asp Gly Gln Pro Gly His Lys Gly Glu Arg Gly  
 940                    945                    950                    955  
 tac cct ggc agc att ggt ccg act ggt gct gca ggt gcc cct ggt cct 2992  
 Tyr Pro Gly Ser Ile Gly Pro Thr Gly Ala Ala Gly Ala Pro Gly Pro  
                     960                    965                    970  
 cac ggt tct gtg ggt cct gct ggg aaa cat gga aac cga ggt gaa cct 3040  
 His Gly Ser Val Gly Pro Ala Gly Lys His Gly Asn Arg Gly Glu Pro  
                     975                    980                    985  
 ggt cct gcc ggt tct gtt ggt cct gtt ggt gct gtt ggt cca aga ggt 3088  
 Gly Pro Ala Gly Ser Val Gly Pro Val Gly Ala Val Gly Pro Arg Gly  
                     990                    995                    1000  
 cct agt ggt cct caa ggc atc cga ggt gac aaa gga gaa cct ggt gat 3136  
 Pro Ser Gly Pro Gln Gly Ile Arg Gly Asp Lys Gly Glu Pro Gly Asp  
                     1005                    1010                    1015  
 aaa ggg cac agg ggt ctt cct ggc tta aaa gga tac agt gga ttg cag 3184  
 Lys Gly His Arg Gly Leu Pro Gly Leu Lys Gly Tyr Ser Gly Leu Gln  
 1020                    1025                    1030                    1035

|   |      |
|---|------|
| ggt ctt cct ggt ctt gct ggc cta cat ggt gac caa gga gct cct ggt | 3232 |
| Gly Leu Pro Gly Leu Ala Gly Leu His Gly Asp Gln Gly Ala Pro Gly |      |
| 1040 1045 1050  |      |
| cct gtg ggt cct gct ggt ccc agg ggt cct gct ggg cct tct gga ccc | 3280 |
| Pro Val Gly Pro Ala Gly Pro Arg Gly Pro Ala Gly Pro Ser Gly Pro |      |
| 1055 1060 1065  |      |
| gtt ggc aaa gat ggt aga tct ggg caa cct ggc cca gtc ggg cct gct | 3328 |
| Val Gly Lys Asp Gly Arg Ser Gly Gln Pro Gly Pro Val Gly Pro Ala |      |
| 1070 1075 1080  |      |
| ggt gtt cgt ggt tct cag ggt agc caa ggt ccc gct ggt ccc cct ggt | 3376 |
| Gly Val Arg Gly Ser Gln Gly Ser Gln Gly Pro Ala Gly Pro Pro Gly |      |
| 1085 1090 1095  |      |
| ccc cct gga cct cct ggt cct cct ggt gtc agc gga ggt ggc tat gac | 3424 |
| Pro Pro Gly Pro Pro Gly Pro Pro Gly Val Ser Gly Gly Gly Tyr Asp |      |
| 1100 1105 1110 1115   |      |
| ttt ggt ttt gaa gga gac ttc tac aga gct gac cag cct cgc tcc cag | 3472 |
| Phe Gly Phe Glu Gly Asp Phe Tyr Arg Ala Asp Gln Pro Arg Ser Gln |      |
| 1120 1125 1130  |      |
| cct tca ctc aga ccc aag gac tat gaa gtt gat gca act ctg aaa tct | 3520 |
| Pro Ser Leu Arg Pro Lys Asp Tyr Glu Val Asp Ala Thr Leu Lys Ser |      |
| 1135 1140 1145  |      |
| ctc aat aac cag att gag acc ctt ctc act cct gaa ggc tct aga aag | 3568 |
| Leu Asn Asn Gln Ile Glu Thr Leu Leu Thr Pro Glu Gly Ser Arg Lys |      |
| 1150 1155 1160  |      |
| aac cct gct acg aca acg tgc cgg gac tta aga ctc agc cac cca gag | 3616 |
| Asn Pro Ala Thr Thr Thr Cys Arg Asp Leu Arg Leu Ser His Pro Glu |      |
| 1165 1170 1175  |      |
| tgg aac agc gat tac tac tgg att gac cct aac caa gga tgt act atg | 3664 |
| Trp Asn Ser Asp Tyr Tyr Trp Ile Asp Pro Asn Gln Gly Cys Thr Met |      |

|   |      |      |      |      |
|---|------|------|------|------|
| 1180  | 1185 | 1190 | 1195 |      |
| gat gcc atc aaa gtg tac tgt gat ttc tct act ggt gaa acc tgc atc |      |      |      | 3712 |
| Asp Ala Ile Lys Val Tyr Cys Asp Phe Ser Thr Gly Glu Thr Cys Ile |      |      |      |      |
| 1200  | 1205 | 1210 |      |      |
| cag gcc caa cct gta aac acc cca gcg aag aac tca tac agc cgc gcc |      |      |      | 3760 |
| Gln Ala Gln Pro Val Asn Thr Pro Ala Lys Asn Ser Tyr Ser Arg Ala |      |      |      |      |
| 1215  | 1220 | 1225 |      |      |
| cag gcc aac aag cat gtc tgg tta gga gag act atc aat ggt ggc agc |      |      |      | 3808 |
| Gln Ala Asn Lys His Val Trp Leu Gly Glu Thr Ile Asn Gly Gly Ser |      |      |      |      |
| 1230  | 1235 | 1240 |      |      |
| cag ttt gaa tac aac gta gaa ggg gtg tcc tcc aag gaa atg gca act |      |      |      | 3856 |
| Gln Phe Glu Tyr Asn Val Glu Gly Val Ser Ser Lys Glu Met Ala Thr |      |      |      |      |
| 1245  | 1250 | 1255 |      |      |
| cag ctc gcc ttc atg cgc ctg cta gcc aac cgt gct tct cag aac atc |      |      |      | 3904 |
| Gln Leu Ala Phe Met Arg Leu Leu Ala Asn Arg Ala Ser Gln Asn Ile |      |      |      |      |
| 1260  | 1265 | 1270 | 1275 |      |
| acc tac cac tgc aag aac agc att gcg tac ctg gat gag gag acg ggc |      |      |      | 3952 |
| Thr Tyr His Cys Lys Asn Ser Ile Ala Tyr Leu Asp Glu Glu Thr Gly |      |      |      |      |
| 1280  | 1285 | 1290 |      |      |
| agc ttg aac aag gct gtg ctt ctg cag ggt tcc aac gat gtt gaa ctt |      |      |      | 4000 |
| Ser Leu Asn Lys Ala Val Leu Leu Gln Gly Ser Asn Asp Val Glu Leu |      |      |      |      |
| 1295  | 1300 | 1305 |      |      |
| gtt gct gag ggc aac agc agg ttc acc tac tct gtc cta gtc gat ggc |      |      |      | 4048 |
| Val Ala Glu Gly Asn Ser Arg Phe Thr Tyr Ser Val Leu Val Asp Gly |      |      |      |      |
| 1310  | 1315 | 1320 |      |      |
| tgc tcc aaa aag aca aat gaa tgg ggc aag aca atc att gaa tac aaa |      |      |      | 4096 |
| Cys Ser Lys Lys Thr Asn Glu Trp Gly Lys Thr Ile Ile Glu Tyr Lys |      |      |      |      |
| 1325  | 1330 | 1335 |      |      |
| aca aat aag cca tct cgc ctg ccg ttc ctt gac att gca cct ctg gac |      |      |      | 4144 |

Thr Asn Lys Pro Ser Arg Leu Pro Phe Leu Asp Ile Ala Pro Leu Asp  
 1340                      1345                      1350                      1355  
 att ggt ggt gct gac caa gaa ttc cgt gtg gag gtt ggc ccc gtc tgt 4192  
 Ile Gly Gly Ala Asp Gln Glu Phe Arg Val Glu Val Gly Pro Val Cys  
                     1360                      1365                      1370  
 ttc aaa taa gtgaactcaa cctaaattaa aaaccaaaaa cccctgaaaa 4241  
 Phe Lys  
 aaggtttctc tttagccgttt cctccttta 4270

<210> 1029

<211> 1373

<212> PRT

<213> Mus musculus

<400> 1029

Met Leu Ser Phe Val Asp Thr Arg Thr Leu Leu Leu Leu Ala Val Thr  
 1                      5                      10                      15  
 Ser Cys Leu Ala Thr Cys Gln Tyr Leu Gln Ser Gly Ser Val Arg Lys  
                     20                      25                      30  
 Gly Pro Thr Gly Asp Arg Gly Pro Arg Gly Gln Arg Gly Pro Ala Gly  
                     35                      40                      45  
 Pro Arg Gly Arg Asp Gly Val Asp Gly Pro Met Gly Pro Pro Gly Pro  
                     50                      55                      60  
 Pro Gly Ser Pro Gly Pro Pro Gly Ser Pro Ala Pro Pro Gly Leu Thr  
 65                      70                      75                      80  
 Gly Asn Phe Ala Ala Gln Tyr Ser Asp Lys Gly Val Ser Ser Gly Pro  
                     85                      90                      95  
 Gly Pro Met Gly Leu Met Gly Pro Arg Gly Pro Pro Gly Ala Val Gly  
                     100                      105                      110

Ala Pro Gly Pro Gln Gly Phe Gln Gly Pro Ala Gly Glu Pro Gly Glu  
 115 120 125  
 Pro Gly Gln Thr Gly Pro Ala Gly Pro Arg Gly Pro Ala Gly Ser Pro  
 130 135 140  
 Gly Lys Ala Gly Glu Asp Gly His Pro Gly Lys Pro Gly Arg Pro Gly  
 145 150 155 160  
 Glu Arg Gly Val Val Gly Pro Gln Gly Ala Arg Gly Phe Pro Gly Thr  
 165 170 175  
 Pro Gly Leu Pro Gly Phe Lys Gly Val Lys Gly His Ser Gly Met Asp  
 180 185 190  
 Gly Leu Lys Gly Gln Pro Gly Ala Gln Gly Val Lys Gly Glu Pro Gly  
 195 200 205  
 Ala Pro Gly Glu Asn Gly Thr Pro Gly Gln Ala Gly Ala Arg Gly Leu  
 210 215 220  
 Pro Gly Glu Arg Gly Arg Val Gly Ala Pro Gly Pro Ala Gly Ala Arg  
 225 230 235 240  
 Gly Ser Asp Gly Ser Val Gly Pro Val Gly Pro Ala Gly Pro Ile Gly  
 245 250 255  
 Ser Ala Gly Pro Pro Gly Phe Pro Gly Ala Pro Gly Pro Lys Gly Glu  
 260 265 270  
 Leu Gly Pro Val Gly Asn Pro Gly Pro Ala Gly Pro Ala Gly Pro Arg  
 275 280 285  
 Gly Glu Val Gly Leu Pro Gly Leu Ser Gly Pro Val Gly Pro Pro Gly  
 290 295 300  
 Asn Pro Gly Thr Asn Gly Leu Thr Gly Ala Lys Gly Ala Thr Gly Leu  
 305 310 315 320  
 Pro Gly Val Ala Gly Ala Pro Gly Leu Pro Gly Pro Arg Gly Ile Pro  
 325 330 335  
 Gly Pro Ala Gly Ala Ala Gly Ala Thr Gly Ala Arg Gly Leu Val Gly

|   |     |     |
|---|-----|-----|
| 340   | 345 | 350 |
| Glu Pro Gly Pro Ala Gly Ser Lys Gly Glu Ser Gly Asn Lys Gly Glu |     |     |
| 355   | 360 | 365 |
| Pro Gly Ser Val Gly Ala Gln Gly Pro Pro Gly Pro Ser Gly Glu Glu |     |     |
| 370   | 375 | 380 |
| Gly Lys Arg Gly Ser Pro Gly Glu Ala Gly Ser Ala Gly Pro Ala Gly |     |     |
| 385   | 390 | 395 |
| Pro Pro Gly Leu Arg Gly Ser Pro Gly Ser Arg Gly Leu Pro Gly Ala |     |     |
| 405   | 410 | 415 |
| Asp Gly Arg Ala Gly Val Met Gly Pro Pro Gly Asn Arg Gly Ser Thr |     |     |
| 420   | 425 | 430 |
| Gly Pro Ala Gly Ile Arg Gly Pro Asn Gly Asp Ala Gly Arg Pro Gly |     |     |
| 435   | 440 | 445 |
| Glu Pro Gly Leu Met Gly Pro Arg Gly Leu Pro Gly Ser Pro Gly Asn |     |     |
| 450   | 455 | 460 |
| Val Gly Pro Ser Gly Lys Glu Gly Pro Val Gly Leu Pro Gly Ile Asp |     |     |
| 465   | 470 | 475 |
| Gly Arg Pro Gly Pro Ile Gly Pro Ala Gly Pro Arg Gly Glu Ala Gly |     |     |
| 485   | 490 | 495 |
| Asn Ile Gly Phe Pro Gly Pro Lys Gly Pro Ser Gly Asp Pro Gly Lys |     |     |
| 500   | 505 | 510 |
| Pro Gly Glu Arg Gly His Pro Gly Leu Ala Gly Ala Arg Gly Ala Pro |     |     |
| 515   | 520 | 525 |
| Gly Pro Asp Gly Asn Asn Gly Ala Gln Gly Pro Pro Gly Pro Gln Gly |     |     |
| 530   | 535 | 540 |
| Val Gln Gly Gly Lys Gly Glu Gln Gly Pro Ala Gly Pro Pro Gly Phe |     |     |
| 545   | 550 | 555 |
| Gln Gly Leu Pro Gly Pro Ser Gly Thr Thr Gly Glu Val Gly Lys Pro |     |     |
| 565   | 570 | 575 |

Gly Glu Arg Gly Leu Pro Gly Glu Phe Gly Leu Pro Gly Pro Ala Gly  
 580 585 590  
 Pro Arg Gly Glu Arg Gly Thr Pro Gly Glu Ser Gly Ala Ala Gly Pro  
 595 600 605  
 Ser Gly Pro Ile Gly Ser Arg Gly Pro Ser Gly Ala Pro Gly Pro Asp  
 610 615 620  
 Gly Asn Lys Gly Glu Ala Gly Ala Val Gly Ala Pro Gly Ser Ala Gly  
 625 630 635 640  
 Ala Ser Gly Pro Gly Gly Leu Pro Gly Glu Arg Gly Ala Ala Gly Ile  
 645 650 655  
 Pro Gly Gly Lys Gly Glu Lys Gly Glu Thr Gly Leu Arg Gly Asp Thr  
 660 665 670  
 Gly Asn Thr Gly Arg Asp Gly Ala Arg Gly Ile Pro Gly Ala Val Gly  
 675 680 685  
 Ala Pro Gly Pro Ala Gly Ala Ser Gly Asp Arg Gly Glu Ala Gly Ala  
 690 695 700  
 Ala Gly Pro Ser Gly Pro Ala Gly Pro Arg Gly Ser Pro Gly Glu Arg  
 705 710 715 720  
 Gly Glu Val Gly Pro Ala Gly Pro Asn Gly Phe Ala Gly Pro Ala Gly  
 725 730 735  
 Ala Ala Gly Gln Pro Gly Ala Lys Gly Glu Lys Gly Thr Lys Gly Pro  
 740 745 750  
 Lys Gly Glu Asn Gly Ile Val Gly Pro Thr Gly Ser Val Gly Ala Ala  
 755 760 765  
 Gly Pro Ser Gly Pro Asn Gly Pro Pro Gly Pro Val Gly Ser Arg Gly  
 770 775 780  
 Asp Gly Gly Pro Pro Gly Met Thr Gly Phe Pro Gly Ala Ala Gly Arg  
 785 790 795 800  
 Thr Gly Pro Pro Gly Pro Ser Gly Ile Ala Gly Pro Pro Gly Pro Pro

|   |      |      |
|---|------|------|
| 805   | 810  | 815  |
| Gly Ala Ala Gly Lys Glu Gly Ile Arg Gly Pro Arg Gly Asp Gln Gly |      |      |
| 820   | 825  | 830  |
| Pro Val Gly Arg Thr Gly Glu Thr Gly Ala Ser Gly Pro Pro Gly Phe |      |      |
| 835   | 840  | 845  |
| Val Gly Glu Lys Gly Pro Ser Gly Glu Pro Gly Thr Ala Gly Ala Pro |      |      |
| 850   | 855  | 860  |
| Gly Thr Ala Gly Pro Gln Gly Leu Leu Gly Ala Pro Gly Ile Leu Gly |      |      |
| 865   | 870  | 875  |
| Leu Pro Gly Ser Arg Gly Glu Arg Gly Leu Pro Gly Ile Ala Gly Ala |      | 880  |
| 885   | 890  | 895  |
| Leu Gly Glu Pro Gly Pro Leu Gly Ile Ser Gly Pro Pro Gly Ala Arg |      |      |
| 900   | 905  | 910  |
| Gly Pro Pro Gly Ala Val Gly Ser Pro Gly Val Asn Gly Ala Pro Gly |      |      |
| 915   | 920  | 925  |
| Glu Ala Gly Arg Asp Gly Asn Pro Gly Ser Asp Gly Pro Pro Gly Arg |      |      |
| 930   | 935  | 940  |
| Asp Gly Gln Pro Gly His Lys Gly Glu Arg Gly Tyr Pro Gly Ser Ile |      |      |
| 945   | 950  | 955  |
| Gly Pro Thr Gly Ala Ala Gly Ala Pro Gly Pro His Gly Ser Val Gly |      | 960  |
| 965   | 970  | 975  |
| Pro Ala Gly Lys His Gly Asn Arg Gly Glu Pro Gly Pro Ala Gly Ser |      |      |
| 980   | 985  | 990  |
| Val Gly Pro Val Gly Ala Val Gly Pro Arg Gly Pro Ser Gly Pro Gln |      |      |
| 995   | 1000 | 1005 |
| Gly Ile Arg Gly Asp Lys Gly Glu Pro Gly Asp Lys Gly His Arg Gly |      |      |
| 1010  | 1015 | 1020 |
| Leu Pro Gly Leu Lys Gly Tyr Ser Gly Leu Gln Gly Leu Pro Gly Leu |      |      |
| 025   | 1030 | 1035 |
|   |      | 1040 |



|   |      |      |      |
|---|------|------|------|
| Ala Gly Leu His Gly Asp Gln Gly Ala Pro Gly Pro Val Gly Pro Ala |      |      |      |
| 1045  | 1050 | 1055 |      |
| Gly Pro Arg Gly Pro Ala Gly Pro Ser Gly Pro Val Gly Lys Asp Gly |      |      |      |
| 1060  | 1065 | 1070 |      |
| Arg Ser Gly Gln Pro Gly Pro Val Gly Pro Ala Gly Val Arg Gly Ser |      |      |      |
| 1075  | 1080 | 1085 |      |
| Gln Gly Ser Gln Gly Pro Ala Gly Pro Pro Gly Pro Pro Gly Pro Pro |      |      |      |
| 1090  | 1095 | 1100 |      |
| Gly Pro Pro Gly Val Ser Gly Gly Gly Tyr Asp Phe Gly Phe Glu Gly |      |      |      |
| 1105  | 1110 | 1115 | 1120 |
| Asp Phe Tyr Arg Ala Asp Gln Pro Arg Ser Gln Pro Ser Leu Arg Pro |      |      |      |
| 1125  | 1130 | 1135 |      |
| Lys Asp Tyr Glu Val Asp Ala Thr Leu Lys Ser Leu Asn Asn Gln Ile |      |      |      |
| 1140  | 1145 | 1150 |      |
| Glu Thr Leu Leu Thr Pro Glu Gly Ser Arg Lys Asn Pro Ala Thr Thr |      |      |      |
| 1155  | 1160 | 1165 |      |
| Thr Cys Arg Asp Leu Arg Leu Ser His Pro Glu Trp Asn Ser Asp Tyr |      |      |      |
| 1170  | 1175 | 1180 |      |
| Tyr Trp Ile Asp Pro Asn Gln Gly Cys Thr Met Asp Ala Ile Lys Val |      |      |      |
| 1185  | 1190 | 1195 | 1200 |
| Tyr Cys Asp Phe Ser Thr Gly Glu Thr Cys Ile Gln Ala Gln Pro Val |      |      |      |
| 1205  | 1210 | 1215 |      |
| Asn Thr Pro Ala Lys Asn Ser Tyr Ser Arg Ala Gln Ala Asn Lys His |      |      |      |
| 1220  | 1225 | 1230 |      |
| Val Trp Leu Gly Glu Thr Ile Asn Gly Gly Ser Gln Phe Glu Tyr Asn |      |      |      |
| 1235  | 1240 | 1245 |      |
| Val Glu Gly Val Ser Ser Lys Glu Met Ala Thr Gln Leu Ala Phe Met |      |      |      |
| 1250  | 1255 | 1260 |      |
| Arg Leu Leu Ala Asn Arg Ala Ser Gln Asn Ile Thr Tyr His Cys Lys |      |      |      |

265                      1270                      1275                      1280  
 Asn Ser Ile Ala Tyr Leu Asp Glu Glu Thr Gly Ser Leu Asn Lys Ala  
                          1285                      1290                      1295  
 Val Leu Leu Gln Gly Ser Asn Asp Val Glu Leu Val Ala Glu Gly Asn  
                          1300                      1305                      1310  
 Ser Arg Phe Thr Tyr Ser Val Leu Val Asp Gly Cys Ser Lys Lys Thr  
                          1315                      1320                      1325  
 Asn Glu Trp Gly Lys Thr Ile Ile Glu Tyr Lys Thr Asn Lys Pro Ser  
                          1330                      1335                      1340  
 Arg Leu Pro Phe Leu Asp Ile Ala Pro Leu Asp Ile Gly Gly Ala Asp  
 345                      1350                      1355                      1360  
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<212> DNA

<213> Mus musculus

<400> 1030

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 aatctgccgg agaatcttca aggctttgtc tggcaciaaag gggtatttcc agttgaccat 180  
 ttttaagatag caagccattc attcctcacc aattcaacca tgctggggcg cacatatatta 240  
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494

<210> 1031

<211> 413

<212> DNA

<213> Mus musculus

<400> 1031

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<210> 1032

<211> 302

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<213> Mus musculus

<400> 1032

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ctgccatctc tccacctaca gcctgatttg gggcatggca gcagtagcgc tgagcacagc 180
tcagagtgga agtggtgacc caggatgaaa gaaaggcgct gcacacaact gcacacctac 240
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tg                                          302

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<210> 1033

&lt;211&gt; 4021

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (269).. (2239)

&lt;400&gt; 1033

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                                Met Lys Gln Ile Leu Gly Val Ile
                                1             5
gac aag aaa ctt cgg aac ctg gag aag aaa aag ggt aaa ctt gat gat 340
Asp Lys Lys Leu Arg Asn Leu Glu Lys Lys Lys Gly Lys Leu Asp Asp
    10             15             20
tac cag gaa cga atg aat aaa ggg gaa agg ctc aat caa gac cag ctg 388
Tyr Gln Glu Arg Met Asn Lys Gly Glu Arg Leu Asn Gln Asp Gln Leu
    25             30             35             40
gat gcc gta tct aag tac cag gaa gtc aca aat aat ttg ggg ttt gca 436
Asp Ala Val Ser Lys Tyr Gln Glu Val Thr Asn Asn Leu Gly Phe Ala
            45             50             55
aag gaa tta cag agg agt ttc atg gca tta agt caa gat att cag aaa 484
Lys Glu Leu Gln Arg Ser Phe Met Ala Leu Ser Gln Asp Ile Gln Lys
            60             65             70
aca ata aag aag aca gca cgt cgg gaa cag ctt atg aga gaa gaa gca 532

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|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr   | Ile | Lys | Lys | Thr | Ala | Arg | Arg | Glu | Gln | Leu | Met | Arg | Glu | Glu | Ala |     |  |
|   |     | 75  |     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     |  |
| gaa cag aag cgc tta aaa act gta ctt gag tta cag tat gta ttg gat |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 580 |  |
| Glu   | Gln | Lys | Arg | Leu | Lys | Thr | Val | Leu | Glu | Leu | Gln | Tyr | Val | Leu | Asp |     |  |
|   |     | 90  |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     |     |  |
| aag ctg gga gat gat gat gtg aga aca gat ctg aaa caa ggt ttg agt |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 628 |  |
| Lys   | Leu | Gly | Asp | Asp | Asp | Val | Arg | Thr | Asp | Leu | Lys | Gln | Gly | Leu | Ser |     |  |
| 105   |     |     |     |     | 110 |     |     |     |     | 115 |     |     |     | 120 |     |     |  |
| gga gtg cca ata ttg tct gag gag gag ttg tca ttg ctg gat gag ttc |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 676 |  |
| Gly   | Val | Pro | Ile | Leu | Ser | Glu | Glu | Glu | Leu | Ser | Leu | Leu | Asp | Glu | Phe |     |  |
|   |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |     |     |  |
| tac aag ctc gta gat cct gag cgt gac atg agt tta agg tta aat gag |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 724 |  |
| Tyr   | Lys | Leu | Val | Asp | Pro | Glu | Arg | Asp | Met | Ser | Leu | Arg | Leu | Asn | Glu |     |  |
|   |     | 140 |     |     |     |     |     | 145 |     |     |     |     | 150 |     |     |     |  |
| cag tat gaa cat gcc tca att cac ttg tgg gat ttg ctg gaa ggg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 772 |  |
| Gln   | Tyr | Glu | His | Ala | Ser | Ile | His | Leu | Trp | Asp | Leu | Leu | Glu | Gly | Lys |     |  |
|   |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |     |     |     |     |  |
| gaa aag cct gtg tgt gga aca acc tat aaa gct cta aag gaa att gtt |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 820 |  |
| Glu   | Lys | Pro | Val | Cys | Gly | Thr | Thr | Tyr | Lys | Ala | Leu | Lys | Glu | Ile | Val |     |  |
|   |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |     |     |     |     |  |
| gag cgt gtt ttc cag tca aac tac ttt gat agc act cac aat cat caa |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 868 |  |
| Glu   | Arg | Val | Phe | Gln | Ser | Asn | Tyr | Phe | Asp | Ser | Thr | His | Asn | His | Gln |     |  |
| 185   |     |     |     |     | 190 |     |     |     |     | 195 |     |     |     | 200 |     |     |  |
| aat ggg ttg tgt gag gag gaa gag gcg gct tca gcg ccc aca gcg gag |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 916 |  |
| Asn   | Gly | Leu | Cys | Glu | Glu | Glu | Glu | Ala | Ala | Ser | Ala | Pro | Thr | Ala | Glu |     |  |
|   |     |     |     | 205 |     |     |     |     | 210 |     |     |     |     | 215 |     |     |  |
| gac cag gta gct gaa gct gaa cct gag cca gcg gaa gaa tac aca gag |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 964 |  |
| Asp   | Gln | Val | Ala | Glu | Ala | Glu | Pro | Glu | Pro | Ala | Glu | Glu | Tyr | Thr | Glu |     |  |
|   |     | 220 |     |     |     |     |     | 225 |     |     |     |     |     | 230 |     |     |  |

|   |      |
|---|------|
| caa agt gag gtt gaa tca aca gag tat gtc aat agg cag ttc atg gca | 1012 |
| Gln Ser Glu Val Glu Ser Thr Glu Tyr Val Asn Arg Gln Phe Met Ala |      |
| 235 240 245   |      |
| gaa aca cag ttc agc agt ggt gag aag gag caa gtg gat gag tgg aca | 1060 |
| Glu Thr Gln Phe Ser Ser Gly Glu Lys Glu Gln Val Asp Glu Trp Thr |      |
| 250 255 260   |      |
| gtt gaa aca gtt gag gtt gta aac tca ctc cag cag caa cct cag gct | 1108 |
| Val Glu Thr Val Glu Val Val Asn Ser Leu Gln Gln Gln Pro Gln Ala |      |
| 265 270 275 280   |      |
| gcg tcc cct tca gtc cca aag ccc cac tct ttg act cca gtg gct cag | 1156 |
| Ala Ser Pro Ser Val Pro Lys Pro His Ser Leu Thr Pro Val Ala Gln |      |
| 285 290 295   |      |
| tca gat cca ctt gtg aga agg cag cgt gta caa gat ctt atg gca caa | 1204 |
| Ser Asp Pro Leu Val Arg Arg Gln Arg Val Gln Asp Leu Met Ala Gln |      |
| 300 305 310   |      |
| atg caa ggg ccc tat aat ttc ata cag gat tca atg ttg gat ttt gaa | 1252 |
| Met Gln Gly Pro Tyr Asn Phe Ile Gln Asp Ser Met Leu Asp Phe Glu |      |
| 315 320 325   |      |
| aat cag acg ctt gat cct gcc att gta tcc gca cag cct atg aac cct | 1300 |
| Asn Gln Thr Leu Asp Pro Ala Ile Val Ser Ala Gln Pro Met Asn Pro |      |
| 330 335 340   |      |
| acc cag aac atg gat atg cct cac gtg gtt tgc cct cag gtt cat tct | 1348 |
| Thr Gln Asn Met Asp Met Pro His Val Val Cys Pro Gln Val His Ser |      |
| 345 350 355 360   |      |
| gaa tct aga ctt gcc caa tct aat caa gtt cct gta caa cca gaa gcc | 1396 |
| Glu Ser Arg Leu Ala Gln Ser Asn Gln Val Pro Val Gln Pro Glu Ala |      |
| 365 370 375   |      |
| aca cag gtt cct ttg gtt tca tcc aca agt gag ggg tat aca gca tct | 1444 |
| Thr Gln Val Pro Leu Val Ser Ser Thr Ser Glu Gly Tyr Thr Ala Ser |      |

|   |     |     |      |
|---|-----|-----|------|
| 380   | 385 | 390 |      |
| cag ccc ttg tac cag cca tct cat gct acg gag cag cgg ccg cag aaa |     |     | 1492 |
| Gln Pro Leu Tyr Gln Pro Ser His Ala Thr Glu Gln Arg Pro Gln Lys |     |     |      |
| 395   | 400 | 405 |      |
| gag cca atg gat cag att cag gca aca ata tct ttg aat aca gac cag |     |     | 1540 |
| Glu Pro Met Asp Gln Ile Gln Ala Thr Ile Ser Leu Asn Thr Asp Gln |     |     |      |
| 410   | 415 | 420 |      |
| act aca gca tcc tca tcc ctt cct gct gct tct cag cct caa gtg ttc |     |     | 1588 |
| Thr Thr Ala Ser Ser Ser Leu Pro Ala Ala Ser Gln Pro Gln Val Phe |     |     |      |
| 425   | 430 | 435 | 440  |
| cag gct ggg aca agt aaa cct ttg cac agc agt gga atc aat gta aat |     |     | 1636 |
| Gln Ala Gly Thr Ser Lys Pro Leu His Ser Ser Gly Ile Asn Val Asn |     |     |      |
| 445   | 450 | 455 |      |
| gca gct cca ttc cag tcc atg caa acg gtg ttc aat atg aat gct cca |     |     | 1684 |
| Ala Ala Pro Phe Gln Ser Met Gln Thr Val Phe Asn Met Asn Ala Pro |     |     |      |
| 460   | 465 | 470 |      |
| gtc cct cct gct aat gaa cca gaa acg tta aaa caa cag agt cag tac |     |     | 1732 |
| Val Pro Pro Ala Asn Glu Pro Glu Thr Leu Lys Gln Gln Ser Gln Tyr |     |     |      |
| 475   | 480 | 485 |      |
| cag gcc act tat aac cag agt ttt tcc agt cag cct cac caa gtg gaa |     |     | 1780 |
| Gln Ala Thr Tyr Asn Gln Ser Phe Ser Ser Gln Pro His Gln Val Glu |     |     |      |
| 490   | 495 | 500 |      |
| caa aca gag ctt caa caa gac caa ctg caa acg gtg gtt ggc act tac |     |     | 1828 |
| Gln Thr Glu Leu Gln Gln Asp Gln Leu Gln Thr Val Val Gly Thr Tyr |     |     |      |
| 505   | 510 | 515 | 520  |
| cat gga tcc cag gac cag cct cat caa gtg cct ggt aac cac cag caa |     |     | 1876 |
| His Gly Ser Gln Asp Gln Pro His Gln Val Pro Gly Asn His Gln Gln |     |     |      |
| 525   | 530 | 535 |      |
| ccc cca cag cag aac act ggc ttt cca cgt agc agt cag cct tat tac |     |     | 1924 |

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 Asn Ser Arg Gly Val Ser Arg Gly Gly Ser Arg Gly Ala Arg Gly Leu  
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 Met Asn Gly Tyr Arg Gly Pro Ala Asn Gly Phe Arg Gly Gly Tyr Asp  
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 Gly Tyr Arg Pro Ser Phe Ser Asn Thr Pro Asn Ser Gly Tyr Ser Gln  
 585 590 595 600  
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 605 610 615  
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4021

&lt;210&gt; 1034

&lt;211&gt; 656

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 1034

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 Ala Leu Ser Gln Asp Ile Gln Lys Thr Ile Lys Lys Thr Ala Arg Arg  
 65 70 75 80  
 Glu Gln Leu Met Arg Glu Glu Ala Glu Gln Lys Arg Leu Lys Thr Val  
 85 90 95  
 Leu Glu Leu Gln Tyr Val Leu Asp Lys Leu Gly Asp Asp Asp Val Arg  
 100 105 110  
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 Tyr Lys Ala Leu Lys Glu Ile Val Glu Arg Val Phe Gln Ser Asn Tyr  
 180 185 190  
 Phe Asp Ser Thr His Asn His Gln Asn Gly Leu Cys Glu Glu Glu Glu  
 195 200 205  
 Ala Ala Ser Ala Pro Thr Ala Glu Asp Gln Val Ala Glu Ala Glu Pro

|   |     |     |
|---|-----|-----|
| 210   | 215 | 220 |
| Glu Pro Ala Glu Glu Tyr Thr Glu Gln Ser Glu Val Glu Ser Thr Glu |     |     |
| 225   | 230 | 235 |
| Tyr Val Asn Arg Gln Phe Met Ala Glu Thr Gln Phe Ser Ser Gly Glu |     | 240 |
|   | 245 | 250 |
| Lys Glu Gln Val Asp Glu Trp Thr Val Glu Thr Val Glu Val Val Asn |     | 255 |
|   | 260 | 265 |
| Ser Leu Gln Gln Gln Pro Gln Ala Ala Ser Pro Ser Val Pro Lys Pro |     | 270 |
|   | 275 | 280 |
| His Ser Leu Thr Pro Val Ala Gln Ser Asp Pro Leu Val Arg Arg Gln |     | 285 |
|   | 290 | 295 |
| Arg Val Gln Asp Leu Met Ala Gln Met Gln Gly Pro Tyr Asn Phe Ile |     | 300 |
| 305   | 310 | 315 |
| Gln Asp Ser Met Leu Asp Phe Glu Asn Gln Thr Leu Asp Pro Ala Ile |     | 320 |
|   | 325 | 330 |
| Val Ser Ala Gln Pro Met Asn Pro Thr Gln Asn Met Asp Met Pro His |     | 335 |
|   | 340 | 345 |
| Val Val Cys Pro Gln Val His Ser Glu Ser Arg Leu Ala Gln Ser Asn |     | 350 |
|   | 355 | 360 |
| Gln Val Pro Val Gln Pro Glu Ala Thr Gln Val Pro Leu Val Ser Ser |     | 365 |
|   | 370 | 375 |
| Thr Ser Glu Gly Tyr Thr Ala Ser Gln Pro Leu Tyr Gln Pro Ser His |     | 380 |
| 385   | 390 | 395 |
| Ala Thr Glu Gln Arg Pro Gln Lys Glu Pro Met Asp Gln Ile Gln Ala |     | 400 |
|   | 405 | 410 |
| Thr Ile Ser Leu Asn Thr Asp Gln Thr Thr Ala Ser Ser Ser Leu Pro |     | 415 |
|   | 420 | 425 |
| Ala Ala Ser Gln Pro Gln Val Phe Gln Ala Gly Thr Ser Lys Pro Leu |     | 430 |
|   | 435 | 440 |
|   |     | 445 |

His Ser Ser Gly Ile Asn Val Asn Ala Ala Pro Phe Gln Ser Met Gln  
 450 455 460  
 Thr Val Phe Asn Met Asn Ala Pro Val Pro Pro Ala Asn Glu Pro Glu  
 465 470 475 480  
 Thr Leu Lys Gln Gln Ser Gln Tyr Gln Ala Thr Tyr Asn Gln Ser Phe  
 485 490 495  
 Ser Ser Gln Pro His Gln Val Glu Gln Thr Glu Leu Gln Gln Asp Gln  
 500 505 510  
 Leu Gln Thr Val Val Gly Thr Tyr His Gly Ser Gln Asp Gln Pro His  
 515 520 525  
 Gln Val Pro Gly Asn His Gln Gln Pro Pro Gln Gln Asn Thr Gly Phe  
 530 535 540  
 Pro Arg Ser Ser Gln Pro Tyr Tyr Asn Ser Arg Gly Val Ser Arg Gly  
 545 550 555 560  
 Gly Ser Arg Gly Ala Arg Gly Leu Met Asn Gly Tyr Arg Gly Pro Ala  
 565 570 575  
 Asn Gly Phe Arg Gly Gly Tyr Asp Gly Tyr Arg Pro Ser Phe Ser Asn  
 580 585 590  
 Thr Pro Asn Ser Gly Tyr Ser Gln Ser Gln Phe Thr Ala Pro Arg Asp  
 595 600 605  
 Tyr Ser Gly Tyr Gln Arg Asp Gly Tyr Gln Gln Asn Phe Lys Arg Gly  
 610 615 620  
 Ser Gly Gln Ser Gly Pro Arg Gly Ala Pro Arg Gly Arg Gly Gly Pro  
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 Pro Arg Pro Asn Arg Gly Met Pro Gln Met Asn Thr Gln Gln Val Asn  
 645 650 655

&lt;210&gt; 1035

&lt;211&gt; 2153

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (151).. (1764)

&lt;400&gt; 1035

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 agcatcagca aggtactgcc ctttccagtt atg aag ctc cag gtg ttg gtg ttg 174

Met Lys Leu Gln Val Leu Val Leu

1

5

gtg ttg ctg atg tcc tgg ttc ggt gtc ctg agc tgg gtg cag gca gaa 222  
 Val Leu Leu Met Ser Trp Phe Gly Val Leu Ser Trp Val Gln Ala Glu

10

15

20

ttc ttc acc tcc att ggg cac atg acc gat ctg att tac gca gag aag 270  
 Phe Phe Thr Ser Ile Gly His Met Thr Asp Leu Ile Tyr Ala Glu Lys

25

30

35

40

gac ctg gta cag tct ctg aag gag tac atc ctt gtg gag gaa gcc aag 318  
 Asp Leu Val Gln Ser Leu Lys Glu Tyr Ile Leu Val Glu Glu Ala Lys

45

50

55

ctc gcc aag att aag agc tgg gcc agc aag atg gaa gcc ctg acc agc 366  
 Leu Ala Lys Ile Lys Ser Trp Ala Ser Lys Met Glu Ala Leu Thr Ser

60

65

70

aga tca gct gcc gac ccc gag ggc tac ctg gct cat cct gtg aat gcc 414  
 Arg Ser Ala Ala Asp Pro Glu Gly Tyr Leu Ala His Pro Val Asn Ala

75

80

85

tac aag ctg gtg aag cgg ttg aac aca gac tgg cct gca ctg ggg gac 462

Tyr Lys Leu Val Lys Arg Leu Asn Thr Asp Trp Pro Ala Leu Gly Asp  
 90 95 100  
 ctt gtc ctt cag gat gct tcg gca ggt ttt gtc gct aac ctc tca gtt 510  
 Leu Val Leu Gln Asp Ala Ser Ala Gly Phe Val Ala Asn Leu Ser Val  
 105 110 115 120  
 cag cgg caa ttc ttc ccc act gat gag gac gag tct gga gct gcc aga 558  
 Gln Arg Gln Phe Phe Pro Thr Asp Glu Asp Glu Ser Gly Ala Ala Arg  
 125 130 135  
 gcc ctg atg aga ctt cag gac acg tac aaa ctg gat ccg gac acg att 606  
 Ala Leu Met Arg Leu Gln Asp Thr Tyr Lys Leu Asp Pro Asp Thr Ile  
 140 145 150  
 tcc aga ggg gaa ctt cca ggc aca aag tac cag gcc atg ctg agt gtg 654  
 Ser Arg Gly Glu Leu Pro Gly Thr Lys Tyr Gln Ala Met Leu Ser Val  
 155 160 165  
 gac gac tgc ttt ggg ctg ggc cgc tca gct tac aat gaa gga gac tat 702  
 Asp Asp Cys Phe Gly Leu Gly Arg Ser Ala Tyr Asn Glu Gly Asp Tyr  
 170 175 180  
 tac cat act gtg ctg tgg atg gag cag gta ctg aag cag ctc gat gct 750  
 Tyr His Thr Val Leu Trp Met Glu Gln Val Leu Lys Gln Leu Asp Ala  
 185 190 195 200  
 ggg gag gag gcc act gtt acc aag tcc ctg gtg ctg gac tac ctg agc 798  
 Gly Glu Glu Ala Thr Val Thr Lys Ser Leu Val Leu Asp Tyr Leu Ser  
 205 210 215  
 tat gct gtc ttc caa ctg ggt gac ctg cac cgt gct gtg gaa ctc acc 846  
 Tyr Ala Val Phe Gln Leu Gly Asp Leu His Arg Ala Val Glu Leu Thr  
 220 225 230  
 cgc cgc ctg ctc tct ctt gac cca agc cac gaa cga gct gga ggg aat 894  
 Arg Arg Leu Leu Ser Leu Asp Pro Ser His Glu Arg Ala Gly Gly Asn  
 235 240 245

ctg cgg tac ttt gaa cgg ttg tta gag gaa gaa aga ggg aaa tca ctg 942  
 Leu Arg Tyr Phe Glu Arg Leu Leu Glu Glu Glu Arg Gly Lys Ser Leu  
 250 255 260  
 tca aat cag aca gac gcc gga ctg gcc acc cag gaa aac ttg tac gag 990  
 Ser Asn Gln Thr Asp Ala Gly Leu Ala Thr Gln Glu Asn Leu Tyr Glu  
 265 270 275 280  
 agg ccc acg gac tac ctg cct gag agg gat gtg tac gag agc ctg tgt 1038  
 Arg Pro Thr Asp Tyr Leu Pro Glu Arg Asp Val Tyr Glu Ser Leu Cys  
 285 290 295  
 cga ggg gag ggc gtg aaa ctg aca ccc cgg agg cag aag aag ctt ttc 1086  
 Arg Gly Glu Gly Val Lys Leu Thr Pro Arg Arg Gln Lys Lys Leu Phe  
 300 305 310  
 tgt agg tac cat cat gga aac aga gtg cca cag ctc ctc atc gcc ccc 1134  
 Cys Arg Tyr His His Gly Asn Arg Val Pro Gln Leu Leu Ile Ala Pro  
 315 320 325  
 ttc aaa gag gaa gac gag tgg gac agc cca cac atc gtc agg tac tat 1182  
 Phe Lys Glu Glu Asp Glu Trp Asp Ser Pro His Ile Val Arg Tyr Tyr  
 330 335 340  
 gat gtg atg tcc gac gaa gaa atc gag agg atc aag gag att gct aag 1230  
 Asp Val Met Ser Asp Glu Glu Ile Glu Arg Ile Lys Glu Ile Ala Lys  
 345 350 355 360  
 ccc aaa ctt gca cga gcc act gtg cgt gac ccc aag aca ggt gtc ctc 1278  
 Pro Lys Leu Ala Arg Ala Thr Val Arg Asp Pro Lys Thr Gly Val Leu  
 365 370 375  
 act gtt gcc agc tac aga gtt tcc aaa agc tcc tgg cta gag gag gat 1326  
 Thr Val Ala Ser Tyr Arg Val Ser Lys Ser Ser Trp Leu Glu Glu Asp  
 380 385 390  
 gac gac cct gtt gtg gcc cgg gtc aac cgg cgg atg caa cat atc acc 1374  
 Asp Asp Pro Val Val Ala Arg Val Asn Arg Arg Met Gln His Ile Thr

|  |      |     |     |
|--|------|-----|-----|
| 395  | 400  | 405 |     |
| ggg cta acg gtg aag act gca gag cta ttg cag gtc gca aac tac gga    | 1422 |     |     |
| Gly Leu Thr Val Lys Thr Ala Glu Leu Leu Gln Val Ala Asn Tyr Gly    |      |     |     |
| 410  | 415  | 420 |     |
| atg ggg gga cag tac gaa cca cac ttt gac ttc tca agg agc gat gac    | 1470 |     |     |
| Met Gly Gly Gln Tyr Glu Pro His Phe Asp Phe Ser Arg Ser Asp Asp    |      |     |     |
| 425  | 430  | 435 | 440 |
| gaa gat gct ttc aag cgt tta ggg act ggg aac cgt gtg gcc acg ttt    | 1518 |     |     |
| Glu Asp Ala Phe Lys Arg Leu Gly Thr Gly Asn Arg Val Ala Thr Phe    |      |     |     |
| 445  | 450  | 455 |     |
| cta aac tac atg agc gat gtc gaa gct ggt ggt gcc acc gtc ttt cct    | 1566 |     |     |
| Leu Asn Tyr Met Ser Asp Val Glu Ala Gly Gly Ala Thr Val Phe Pro    |      |     |     |
| 460  | 465  | 470 |     |
| gac ttg gga gct gct att tgg ccc aag aag ggc aca gct gta ttc tgg    | 1614 |     |     |
| Asp Leu Gly Ala Ala Ile Trp Pro Lys Lys Gly Thr Ala Val Phe Trp    |      |     |     |
| 475  | 480  | 485 |     |
| tac aac ctt ctt cgc agt ggg gaa ggt gat tat cgg acg aga cat gca    | 1662 |     |     |
| Tyr Asn Leu Leu Arg Ser Gly Glu Gly Asp Tyr Arg Thr Arg His Ala    |      |     |     |
| 490  | 495  | 500 |     |
| gcc tgc cct gtg ctt gtg ggc tgc aag tgg gtc tcc aac aag tgg ttc    | 1710 |     |     |
| Ala Cys Pro Val Leu Val Gly Cys Lys Trp Val Ser Asn Lys Trp Phe    |      |     |     |
| 505  | 510  | 515 | 520 |
| cat gag cga gga cag gag ttc tta aga cct tgt gga aca acg gaa gtt    | 1758 |     |     |
| His Glu Arg Gly Gln Glu Phe Leu Arg Pro Cys Gly Thr Thr Glu Val.   |      |     |     |
| 525  | 530  | 535 |     |
| gat tga cgtccttttc tctccgctcc tccctggccc atagtccaaa tcatcttcaa     | 1814 |     |     |
| Asp  |      |     |     |
| gttcaacatg acagcttcct tttttatgtc ccagctcctg tcaggcaggt cattggagga  | 1874 |     |     |
| gccagtgttt gactgaattg agagagtata tccctgagcct agtcctgggt gacctgggcc | 1934 |     |     |



ccagactctg accagcttac acctgccctg gctctggggg tgtcttggca tggctgcggt 1994  
 agagccagac tatagcaccg ggcacggctg ctttgtacct cagatatctc aggtagaaga 2054  
 tgtctcagtg aaaccaaagt tctgatgctg ttacatgtg tgtttttatc acatttctat 2114  
 ttgttgtggc ttttaacaaa aaataaaaaat gttcctgcc 2153

<210> 1036

<211> 537

<212> PRT

<213> Mus musculus

<400> 1036

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Leu | Gln | Val | Leu | Val | Leu | Val | Leu | Leu | Met | Ser | Trp | Phe | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Leu | Ser | Trp | Val | Gln | Ala | Glu | Phe | Phe | Thr | Ser | Ile | Gly | His | Met |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |
| Thr | Asp | Leu | Ile | Tyr | Ala | Glu | Lys | Asp | Leu | Val | Gln | Ser | Leu | Lys | Glu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |
| Tyr | Ile | Leu | Val | Glu | Glu | Ala | Lys | Leu | Ala | Lys | Ile | Lys | Ser | Trp | Ala |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |
| Ser | Lys | Met | Glu | Ala | Leu | Thr | Ser | Arg | Ser | Ala | Ala | Asp | Pro | Glu | Gly |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |
| Tyr | Leu | Ala | His | Pro | Val | Asn | Ala | Tyr | Lys | Leu | Val | Lys | Arg | Leu | Asn |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Thr | Asp | Trp | Pro | Ala | Leu | Gly | Asp | Leu | Val | Leu | Gln | Asp | Ala | Ser | Ala |
|     |     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |
| Gly | Phe | Val | Ala | Asn | Leu | Ser | Val | Gln | Arg | Gln | Phe | Phe | Pro | Thr | Asp |
|     |     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |
| Glu | Asp | Glu | Ser | Gly | Ala | Ala | Arg | Ala | Leu | Met | Arg | Leu | Gln | Asp | Thr |
|     |     |     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |

Tyr Lys Leu Asp Pro Asp Thr Ile Ser Arg Gly Glu Leu Pro Gly Thr  
 145                      150                      155                      160  
 Lys Tyr Gln Ala Met Leu Ser Val Asp Asp Cys Phe Gly Leu Gly Arg  
                     165                      170                      175  
 Ser Ala Tyr Asn Glu Gly Asp Tyr Tyr His Thr Val Leu Trp Met Glu  
                     180                      185                      190  
 Gln Val Leu Lys Gln Leu Asp Ala Gly Glu Glu Ala Thr Val Thr Lys  
                     195                      200                      205  
 Ser Leu Val Leu Asp Tyr Leu Ser Tyr Ala Val Phe Gln Leu Gly Asp  
                     210                      215                      220  
 Leu His Arg Ala Val Glu Leu Thr Arg Arg Leu Leu Ser Leu Asp Pro  
 225                      230                      235                      240  
 Ser His Glu Arg Ala Gly Gly Asn Leu Arg Tyr Phe Glu Arg Leu Leu  
                     245                      250                      255  
 Glu Glu Glu Arg Gly Lys Ser Leu Ser Asn Gln Thr Asp Ala Gly Leu  
                     260                      265                      270  
 Ala Thr Gln Glu Asn Leu Tyr Glu Arg Pro Thr Asp Tyr Leu Pro Glu  
                     275                      280                      285  
 Arg Asp Val Tyr Glu Ser Leu Cys Arg Gly Glu Gly Val Lys Leu Thr  
                     290                      295                      300  
 Pro Arg Arg Gln Lys Lys Leu Phe Cys Arg Tyr His His Gly Asn Arg  
 305                      310                      315                      320  
 Val Pro Gln Leu Leu Ile Ala Pro Phe Lys Glu Glu Asp Glu Trp Asp  
                     325                      330                      335  
 Ser Pro His Ile Val Arg Tyr Tyr Asp Val Met Ser Asp Glu Glu Ile  
                     340                      345                      350  
 Glu Arg Ile Lys Glu Ile Ala Lys Pro Lys Leu Ala Arg Ala Thr Val  
                     355                      360                      365  
 Arg Asp Pro Lys Thr Gly Val Leu Thr Val Ala Ser Tyr Arg Val Ser

|   |     |     |
|---|-----|-----|
| 370   | 375 | 380 |
| Lys Ser Ser Trp Leu Glu Glu Asp Asp Asp Pro Val Val Ala Arg Val |     |     |
| 385   | 390 | 395 |
| Asn Arg Arg Met Gln His Ile Thr Gly Leu Thr Val Lys Thr Ala Glu |     | 400 |
|   | 405 | 410 |
| Leu Leu Gln Val Ala Asn Tyr Gly Met Gly Gly Gln Tyr Glu Pro His |     | 415 |
|   | 420 | 425 |
| Phe Asp Phe Ser Arg Ser Asp Asp Glu Asp Ala Phe Lys Arg Leu Gly |     | 430 |
|   | 435 | 440 |
| Thr Gly Asn Arg Val Ala Thr Phe Leu Asn Tyr Met Ser Asp Val Glu |     | 445 |
|   | 450 | 455 |
| Ala Gly Gly Ala Thr Val Phe Pro Asp Leu Gly Ala Ala Ile Trp Pro |     | 460 |
| 465   | 470 | 475 |
| Lys Lys Gly Thr Ala Val Phe Trp Tyr Asn Leu Leu Arg Ser Gly Glu |     | 480 |
|   | 485 | 490 |
| Gly Asp Tyr Arg Thr Arg His Ala Ala Cys Pro Val Leu Val Gly Cys |     | 495 |
|   | 500 | 505 |
| Lys Trp Val Ser Asn Lys Trp Phe His Glu Arg Gly Gln Glu Phe Leu |     | 510 |
|   | 515 | 520 |
| Arg Pro Cys Gly Thr Thr Glu Val Asp                             |     | 525 |
|   | 530 | 535 |

&lt;210&gt; 1037

&lt;211&gt; 2001

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 1037

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aacctctgagt gcctaggcat gggagtacag gctaacgagg taggatgctg ggaggatccc 180  
atagtttagg ccatgaggag gcaaactctg agtgcctagg catgggagta cagtggtaga 240  
gtaiggctcc agcttagtga atccaatgac acactgggca tcaagggtag tticaggagg 300  
aaggacttag gaaaaggctt gctaaggatt catagacagt agctcaaagc atagtggtaa 360  
gattgttctt tattacacac tagagagaaa agcagaagac atgattactc ggggccaga 420  
agaggttaga ggttttcaac gaaggagat tgtctgatca taagtctgac tccatttgc 480  
aagctaagaa agctaaaatg aaggagccca gaaggaagga aagaaaaagc acagtgagaa 540  
gaatgaggag agcattgcat ctagggagac atggcaaaga acagcggggg tggggatgga 600  
ctcagcagtg ctgctaggg ataacaggga caggagttag cataggtcaa caactgagca 660  
gatagcaaga taacaacttc tgagtcctatg gattgactag gaggtggcag aagtaaggct 720  
ggacagtgat tgggaagtgg agggctctctg gaaaacatca gggagaagtg taggggaatg 780  
ccatgcaaat ttaaattcat gtttagggca gaaagagagg ctgaggttgg gctgctaggg 840  
gggaagtagc agggaggagt cagtgtgcat cagagaggct gataggaaag aggggtcaca 900  
tcacgtcaga gaaaagtccg tcatcttgtc tgggtggttg ggcaaaagga aatgggccac 960  
tctaccaaag gggaaatctg catgtaatct ctccaaatgg ggacactgga agctctcacg 1020  
gggcaagctg gtaggatggg aatatcagtg tcaagcctta ggaggagaga agagagataa 1080  
gctccaagtg ttccagaat ggagcctcag gaaaaagtaa agcaaaggag tcaatgtgac 1140  
ttgggttaat tagaagaaac caaatgacac gtactttatg acagttcctg acaaatggc 1200  
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gtaggtacag ggtgcatgtg aatgggtggag gcacagctgg gcaccaatgc gagacagcca 1320  
tttcgcagtg agcactaaat ctgtgtttct gctgttcaag acggctgaag ggtgtgctgt 1380  
ggaacagaga gactgcaggt ggttagtgga gcctagatgc aggggagctt tctaaactca 1440  
tcgggtttgt agggtagtt tgagaatgta aagaaagtag gtaacaatat ttttcagga 1500  
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atgaagattg gtagtatatg tatgaataga aggtcttcag aactgagtgt caatcttata 1620  
atgiagtggg cccaaaggag aaaaaggaag caagagtac ctggactaca ggattgatag 1680  
tggaaggca tcttcacatt atagtgtgc attcccactc ttggaaaaa aaatcctggt 1740  
cattagaaac aacacaggaa gggacacttg aatgaaagca gtgagcaaac tgcgttagac 1800

tgaggaactc agtgactata atggaaagag aaacaccctc gactgccatc taaatcattg 1860  
 aaatatggaa gcaaaggcag cctaagtgcc atttgaagtc agaaccacag gaataatccat 1920  
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<210> 1038

<211> 620

<212> DNA

<213> Mus musculus

<400> 1038

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 ccgagaggag ggaggaggag gaggtggagg aggagcgggc cgcgggattg tcaatattta 120  
 aacagagcgc atcatgcgtg agtacaagct agtagtcctt ggttgtgata tcgtgatgaa 180  
 ttcatcactg acagttcagt tagttcaggg gatTTTTgtt gaaaaatatg acccaacgat 240  
 agaagattcc tacagagagc aagtcgaggt agattgccaa cagtgcattc tggagatcct 300  
 ggacactgca ggaaccgagc aatttacagc aatgagggat ttgtatatga agaattggcca 360  
 agggtttgca ctagtattat caattacagc tcagtctacg tttaatgatt tacaagactt 420  
 gagagaacag attttaccgg gtttaagacac agaagatgtt gcaatggitt tggttggcaa 480  
 taatgttgct tggaagatga acgggtagtt ggccaagaac aaggccagaa tttaggcaga 540  
 cagtgggtga gctgtgcctt tttaggatcc tctgcaaagt cgaagatcac cttaatgagg 600  
 taigttaatga cctgtcggac 620

<210> 1039

<211> 525

<212> DNA

<213> Mus musculus

&lt;400&gt; 1039

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 tataaagttc ttgaaatata aaagaaatga aatctgtaag aaagtctagt agagcagggtg 180  
 tgttaggacg tgtacgttgg ggtgggtgtg tcagtacatc ccacgccatc caccitccact 240  
 cattccacct tgcccatagt aacctccact gccitccacca ccacgaccat agccitcccaa 300  
 gccatcagga gcaccgtagc ciccgtgtga gctgttcccc atccccattc tcccaacaga 360  
 cccgtatcct ccttgattat ccattccatc tctgccatag cctccccattc cagaacctcc 420  
 cattccagag ccacctccag gagtagaatt caagaagagt tcaatgtatc gatgttgcac 480  
 gttggtttta accttagaca tggcagctac tgcattctta tgtgt 525

&lt;210&gt; 1040

&lt;211&gt; 729

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 1040

ctctgtgaca ggcaattctaa actgtttgaa gaacctgaag atcccagcaa caggtcattt 60  
 ttttctgaaa tcattctctc tatttctgat gtaaaattca gccatagcgg tcgttatatg 120  
 atgactagag actatttgtc agtcaaaatt tgggacttga atatggagaa caggcccgtg 180  
 gagacatacc aggtacatga atacctcaga agtaaacitt gctcactgtg tgaaaacgac 240  
 tgcataattg acaaatttga atgttgttgg aatgggtctg acagtgttgt catgactgga 300  
 tcttacaata atttcittcag aatgttcgac aggaacacaa agcgggatat aaccctagaa 360  
 gcatcacgag agaacaataa gcctcgacg gttttgaagc cagcgaaggt ctgtgcaagt 420  
 ggcaagcgaa agaaagatga aataagtgtt gacagcctag acttcaacaa gaaaatcctt 480  
 catacagcct ggcatcccaa gggaaacatc attgctgtag aacttacaac catctgaaaa 540  
 tatttccaga caaagtgaat taggctggca ttctctgcag aggagccact tctgtcctag 600  
 tgagatagtt gaatctagca ticataccta taagagagcg gtccattgtg gcgccccctt 660

cagtgtttga cagtgtgcca ttcgnacaca catttgatag cctcatggag aaggctgtgt 720  
 ggatgcatc 729

<210> 1041

<211> 1801

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (160).. (783)

<400> 1041

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 cgagggccaa gagggcaagc ctagggaagg ctctgtccag gacgacacag ggggcacaat 120  
 ccgtgtgagt cgagctgcgt ggacgtcgct gcggccacc atg gta gcc act tgc 174

Met Val Ala Thr Cys

1 5

ctt cag gtg gtg ggt ttc gtc acg agc ttc gtg ggt tgg att ggc atc 222  
 Leu Gln Val Val Gly Phe Val Thr Ser Phe Val Gly Trp Ile Gly Ile

10 15 20

atc gtc aca acg tcc acc aat gac tgg gtg gtg acc tgc agc tac acc 270  
 Ile Val Thr Thr Ser Thr Asn Asp Trp Val Val Thr Cys Ser Tyr Thr

25 30 35

atc ccc acc tgc cga aaa atg gac gaa ctg ggc tcc aag ggc ctg tgg 318  
 Ile Pro Thr Cys Arg Lys Met Asp Glu Leu Gly Ser Lys Gly Leu Trp

40 45 50

gct gac tgc gtc atg gcc act ggt ctc tac cac tgc aaa ccc ctg gtg 366

Ala Asp Cys Val Met Ala Thr Gly Leu Tyr His Cys Lys Pro Leu Val  
 55 60 65  
 gac atc ctc atc ctt cca ggc tac gtg cag gct tgt aga gcc ctc atg 414  
 Asp Ile Leu Ile Leu Pro Gly Tyr Val Gln Ala Cys Arg Ala Leu Met  
 70 75 80 85  
 att gct gcc tcc gtt ctg ggc ctg ccc gcc atc ttg ctg ctg ttg aca 462  
 Ile Ala Ala Ser Val Leu Gly Leu Pro Ala Ile Leu Leu Leu Leu Thr  
 90 95 100  
 gtt ctc ccc tgc atc cga atg ggc cac gag cct gga gtg gcc aag tac 510  
 Val Leu Pro Cys Ile Arg Met Gly His Glu Pro Gly Val Ala Lys Tyr  
 105 110 115  
 agg cga gcc cag ctg gct ggg gtg ctc ctt att ctg ctg gct ctc tgc 558  
 Arg Arg Ala Gln Leu Ala Gly Val Leu Leu Ile Leu Leu Ala Leu Cys  
 120 125 130  
 gcc att gtc gcc acc atc tgg ttt cct gta tgt gcc cac cgc gag atc 606  
 Ala Ile Val Ala Thr Ile Trp Phe Pro Val Cys Ala His Arg Glu Ile  
 135 140 145  
 acc atc gtg agc ttt ggc tac tcg ctg tac gca ggt tgg atc ggt gct 654  
 Thr Ile Val Ser Phe Gly Tyr Ser Leu Tyr Ala Gly Trp Ile Gly Ala  
 150 155 160 165  
 gtg atg tgc ctg gtg ggt ggc tgt gtc atc gtc tgc tgc tcc ggg gat 702  
 Val Met Cys Leu Val Gly Gly Cys Val Ile Val Cys Cys Ser Gly Asp  
 170 175 180  
 gca cag tca ttt gga gaa aac cgt ttc tat tac tct tct ggt tcc agc 750  
 Ala Gln Ser Phe Gly Glu Asn Arg Phe Tyr Tyr Ser Ser Gly Ser Ser  
 185 190 195  
 tcg cca acg cat gcc aag agt gcc cat gtc taa gagggctgct ccactgccccg 803  
 Ser Pro Thr His Ala Lys Ser Ala His Val  
 200 205



ccgagggtgct gtaaatgctg ggccctgggcc tgggtttgct cgccacagtg gggagaagcc 863  
 cacttccctg ccaggcacta aagccaaagt tctagaaagt atcctgcccc ggcatittga 923  
 agtcgtaaca acccaccac ccaccacca ctctctggct gccttaaaag aaagctctag 983  
 ctacagittaat gccacatag tttctcctg gagttgcggg ctgtggctgt ttgctctttc 1043  
 ctctgggcatt ccattgttgt tgattaaaaa aataatttgt ttctctccta aattcaaagt 1103  
 tcttgggaac attgctgact tgggtgtgga ttgggaaga aataaaagat gcttttcaa 1163  
 gggttaccaa cgacagtga agccttatag agacagctct ctctccctt tcggcttagt 1223  
 ttcaagggtca cttatatata agagatagaa atggatagat tgggaacacg ggtgggagg 1283  
 gaactcagag ctctccctcc acgggaagct tctcttttat aagttgaggg gttgggtgtc 1343  
 ttttttttt tagtttgcga ttttacattt ttctgtacgt actttttcaa gattgatcat 1403  
 ttttataacc acgggtttcc tgaaaattct caattcacca atatgaagga aatgaaccaa 1463  
 gcagacgtta atatgcaata aataatagta cgaagattat aactttaact gactgccac 1523  
 ggtttccagg ttgtatgct atagttttta atcctatggt tgcataatgct tcaaattaac 1583  
 acatttaaaa atcttttctc cccttctatt tctgtctcca ttctgttaga gaccatgaag 1643  
 cagtattggt taacataagt tgtactgtta agtttggctt catgggtgta aacaccaatg 1703  
 gtctgtcagt gtctaagact ctggatactg caagctccgt ccggtgcatt tgttcaggta 1763  
 aaatctgtgc aataaaataa caaacgtca aaaaaaa 1801

<210> 1042

<211> 207

<212> PRT

<213> Mus musculus

<400> 1042

Met Val Ala Thr Cys Leu Gln Val Val Gly Phe Val Thr Ser Phe Val

1

5

10

15

Gly Trp Ile Gly Ile Ile Val Thr Thr Ser Thr Asn Asp Trp Val Val

20

25

30

Thr Cys Ser Tyr Thr Ile Pro Thr Cys Arg Lys Met Asp Glu Leu Gly  
 35 40 45  
 Ser Lys Gly Leu Trp Ala Asp Cys Val Met Ala Thr Gly Leu Tyr His  
 50 55 60  
 Cys Lys Pro Leu Val Asp Ile Leu Ile Leu Pro Gly Tyr Val Gln Ala  
 65 70 75 80  
 Cys Arg Ala Leu Met Ile Ala Ala Ser Val Leu Gly Leu Pro Ala Ile  
 85 90 95  
 Leu Leu Leu Leu Thr Val Leu Pro Cys Ile Arg Met Gly His Glu Pro  
 100 105 110  
 Gly Val Ala Lys Tyr Arg Arg Ala Gln Leu Ala Gly Val Leu Leu Ile  
 115 120 125  
 Leu Leu Ala Leu Cys Ala Ile Val Ala Thr Ile Trp Phe Pro Val Cys  
 130 135 140  
 Ala His Arg Glu Ile Thr Ile Val Ser Phe Gly Tyr Ser Leu Tyr Ala  
 145 150 155 160  
 Gly Trp Ile Gly Ala Val Met Cys Leu Val Gly Gly Cys Val Ile Val  
 165 170 175  
 Cys Cys Ser Gly Asp Ala Gln Ser Phe Gly Glu Asn Arg Phe Tyr Tyr  
 180 185 190  
 Ser Ser Gly Ser Ser Ser Pro Thr His Ala Lys Ser Ala His Val  
 195 200 205

<210> 1043

<211> 1877

<212> DNA

<213> Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (197).. (1531)

&lt;400&gt; 1043

ccttggtctg accctgtgag tatggttttg gccgctgcct ttaacaccgg ctttctacct 60  
 tttaaaacac ggacacttga aatccttata ctctaaccctc ttaagacctt gacatcccct 120  
 ccttcccaaa ctctcaccct gagggcctct caccacagat gccctgctct ctgacctgga 180  
 gaccaccact tcacac atg tca cgg tta ggg gct cca aaa gag cgc cca cca 232

Met Ser Arg Leu Gly Ala Pro Lys Glu Arg Pro Pro

1

5

10

gag aca ctc aca cct ccc cca ccc tat ggc cac cag cca cag aca ggg 280  
 Glu Thr Leu Thr Pro Pro Pro Pro Tyr Gly His Gln Pro Gln Thr Gly

15

20

25

tct gga gaa tct tca gga acc act ggg gac aag gat cat cta tac agc 328  
 Ser Gly Glu Ser Ser Gly Thr Thr Gly Asp Lys Asp His Leu Tyr Ser

30

35

40

aca gta tgc aag cct cgg tcc cca aag cct gtg gcc cct gtg gct cct 376  
 Thr Val Cys Lys Pro Arg Ser Pro Lys Pro Val Ala Pro Val Ala Pro

45

50

55

60

cca ttc tcc tct tcc agt ggt gtg ttg ggc aat ggc ctc tgt gag cta 424  
 Pro Phe Ser Ser Ser Ser Gly Val Leu Gly Asn Gly Leu Cys Glu Leu

65

70

75

gac cgt ttg ctt cag gaa ctt aat gcc acc cag ttc aac att aca gat 472  
 Asp Arg Leu Leu Gln Glu Leu Asn Ala Thr Gln Phe Asn Ile Thr Asp

80

85

90

gaa atc atg tct cag ttc cca tct agt aaa atg gct gaa ggg gaa gag 520  
 Glu Ile Met Ser Gln Phe Pro Ser Ser Lys Met Ala Glu Gly Glu Glu

95

100

105

aag gag gac caa tct gaa gac aag agc tca ccc act gtc cct ccc agc 568  
Lys Glu Asp Gln Ser Glu Asp Lys Ser Ser Pro Thr Val Pro Pro Ser  
110 115 120  
cca ttc cct gcc ccc tca aag cct tca gcc acc tcc gcc act cag gaa 616  
Pro Phe Pro Ala Pro Ser Lys Pro Ser Ala Thr Ser Ala Thr Gln Glu  
125 130 135 140  
ctg gat aga ctg atg gcc tcg ctc tct gac ttc cgt gtt cag aac cat 664  
Leu Asp Arg Leu Met Ala Ser Leu Ser Asp Phe Arg Val Gln Asn His  
145 150 155  
ctt cca gcc tca ggg cca cct cag cct cca gca gcg agc ccc acc cgt 712  
Leu Pro Ala Ser Gly Pro Pro Gln Pro Pro Ala Ala Ser Pro Thr Arg  
160 165 170  
gaa gga tgc cca tct cca cca gga cag act agc aaa ggc agt ctg gac 760  
Glu Gly Cys Pro Ser Pro Pro Gly Gln Thr Ser Lys Gly Ser Leu Asp  
175 180 185  
acc atg ctg ggc ctg ctg cag tct gac ctc agc cgt cgt ggt gtc ccc 808  
Thr Met Leu Gly Leu Leu Gln Ser Asp Leu Ser Arg Arg Gly Val Pro  
190 195 200  
aca cag gcc aaa ggc ctc tgt ggc tcc tgc aat aaa cct ata gct ggg 856  
Thr Gln Ala Lys Gly Leu Cys Gly Ser Cys Asn Lys Pro Ile Ala Gly  
205 210 215 220  
caa gtg gtt aca gcc ctg ggc aga gcc tgg cac ccg gag cac ttc ctt 904  
Gln Val Val Thr Ala Leu Gly Arg Ala Trp His Pro Glu His Phe Leu  
225 230 235  
tgc agc ggt tgt tcc aca acc ctg gga ggc agc agc ttc ttc gag aag 952  
Cys Ser Gly Cys Ser Thr Thr Leu Gly Gly Ser Ser Phe Phe Glu Lys  
240 245 250  
gat ggg gct ccc ttt tgc ccc gag tgc tac ttt gag cgc ttc tcc cca 1000  
Asp Gly Ala Pro Phe Cys Pro Glu Cys Tyr Phe Glu Arg Phe Ser Pro

|   |     |     |      |
|---|-----|-----|------|
| 255   | 260 | 265 |      |
| cga tgt ggc ttc tgt aac caa ccc atc cga cac aaa atg gtt acc gcc |     |     | 1048 |
| Arg Cys Gly Phe Cys Asn Gln Pro Ile Arg His Lys Met Val Thr Ala |     |     |      |
| 270   | 275 | 280 |      |
| ttg ggc acc cac tgg cac cca gaa cat ttc tgc tgc gtc agc tgc gga |     |     | 1096 |
| Leu Gly Thr His Trp His Pro Glu His Phe Cys Cys Val Ser Cys Gly |     |     |      |
| 285   | 290 | 295 | 300  |
| gag cct ttt gga gaa gag ggt ttc cac gag cgg gag ggt cgt ccg tac |     |     | 1144 |
| Glu Pro Phe Gly Glu Glu Gly Phe His Glu Arg Glu Gly Arg Pro Tyr |     |     |      |
| 305   | 310 | 315 |      |
| tgc cgg cgg gac ttc ctg cag ctg ttc gcc cca cgc tgc cag ggc tgc |     |     | 1192 |
| Cys Arg Arg Asp Phe Leu Gln Leu Phe Ala Pro Arg Cys Gln Gly Cys |     |     |      |
| 320   | 325 | 330 |      |
| caa ggc cct att ttg gat aac tac atc tcg gca ctc agc gcg ctc tgg |     |     | 1240 |
| Gln Gly Pro Ile Leu Asp Asn Tyr Ile Ser Ala Leu Ser Ala Leu Trp |     |     |      |
| 335   | 340 | 345 |      |
| cac cca gac tgc ttc gtg tgc agg gaa tgc ctt gcg ccc ttc tcc gga |     |     | 1288 |
| His Pro Asp Cys Phe Val Cys Arg Glu Cys Leu Ala Pro Phe Ser Gly |     |     |      |
| 350   | 355 | 360 |      |
| ggc agc ttt ttt gag cac gag ggt cgc cct ttg tgt gaa aac cat ttc |     |     | 1336 |
| Gly Ser Phe Phe Glu His Glu Gly Arg Pro Leu Cys Glu Asn His Phe |     |     |      |
| 365   | 370 | 375 | 380  |
| cat gct cag cgt ggt tcg ctg tgt gcc acg tgt ggt ctc cca gtg acc |     |     | 1384 |
| His Ala Gln Arg Gly Ser Leu Cys Ala Thr Cys Gly Leu Pro Val Thr |     |     |      |
| 385   | 390 | 395 |      |
| ggc cgc tgt gtg tcc gct ctg ggc cga cgc ttc cat cca gac cac ttc |     |     | 1432 |
| Gly Arg Cys Val Ser Ala Leu Gly Arg Arg Phe His Pro Asp His Phe |     |     |      |
| 400   | 405 | 410 |      |
| acc tgc aca ttc tgc ctg cgc cca ctc acc aaa ggc tcc ttc cag gag |     |     | 1480 |

Thr Cys Thr Phe Cys Leu Arg Pro Leu Thr Lys Gly Ser Phe Gln Glu  
 415 420 425  
 cgc gcc agc aag cct tac tgc cag cct tgc ttc ctg aag ctc ttc ggc 1528  
 Arg Ala Ser Lys Pro Tyr Cys Gln Pro Cys Phe Leu Lys Leu Phe Gly  
 430 435 440  
 tga cctcctcttg ggatcagaga tctccaaaac taagccttca aaaacacatt 1581

445  
 cgtgaaaaag actgagtcct ccagatccct ggctctggag ctaccaggc atccttgctc 1641  
 ctctcctccac ccccatcccc attgtggccc agccactgga gaggcctacc cctaagaigc 1701  
 tctaggtttg tcaatttcag aaaggggccc attagcctgg aatgtagctc tcactttgac 1761  
 atgattctgg ttctcttgtc tgaccaagta gaggccagga tgtccctgtt cacccatggc 1821  
 acactattct gtacacattt ttttttctac aaacataaaa acacactcca cacttt 1877

<210> 1044

<211> 444

<212> PRT

<213> Mus musculus

<400> 1044

Met Ser Arg Leu Gly Ala Pro Lys Glu Arg Pro Pro Glu Thr Leu Thr  
 1 5 10 15  
 Pro Pro Pro Pro Tyr Gly His Gln Pro Gln Thr Gly Ser Gly Glu Ser  
 20 25 30  
 Ser Gly Thr Thr Gly Asp Lys Asp His Leu Tyr Ser Thr Val Cys Lys  
 35 40 45  
 Pro Arg Ser Pro Lys Pro Val Ala Pro Val Ala Pro Pro Phe Ser Ser  
 50 55 60

Ser Ser Gly Val Leu Gly Asn Gly Leu Cys Glu Leu Asp Arg Leu Leu  
 65 70 75 80  
 Gln Glu Leu Asn Ala Thr Gln Phe Asn Ile Thr Asp Glu Ile Met Ser  
 85 90 95  
 Gln Phe Pro Ser Ser Lys Met Ala Glu Gly Glu Glu Lys Glu Asp Gln  
 100 105 110  
 Ser Glu Asp Lys Ser Ser Pro Thr Val Pro Pro Ser Pro Phe Pro Ala  
 115 120 125  
 Pro Ser Lys Pro Ser Ala Thr Ser Ala Thr Gln Glu Leu Asp Arg Leu  
 130 135 140  
 Met Ala Ser Leu Ser Asp Phe Arg Val Gln Asn His Leu Pro Ala Ser  
 145 150 155 160  
 Gly Pro Pro Gln Pro Pro Ala Ala Ser Pro Thr Arg Glu Gly Cys Pro  
 165 170 175  
 Ser Pro Pro Gly Gln Thr Ser Lys Gly Ser Leu Asp Thr Met Leu Gly  
 180 185 190  
 Leu Leu Gln Ser Asp Leu Ser Arg Arg Gly Val Pro Thr Gln Ala Lys  
 195 200 205  
 Gly Leu Cys Gly Ser Cys Asn Lys Pro Ile Ala Gly Gln Val Val Thr  
 210 215 220  
 Ala Leu Gly Arg Ala Trp His Pro Glu His Phe Leu Cys Ser Gly Cys  
 225 230 235 240  
 Ser Thr Thr Leu Gly Gly Ser Ser Phe Phe Glu Lys Asp Gly Ala Pro  
 245 250 255  
 Phe Cys Pro Glu Cys Tyr Phe Glu Arg Phe Ser Pro Arg Cys Gly Phe  
 260 265 270  
 Cys Asn Gln Pro Ile Arg His Lys Met Val Thr Ala Leu Gly Thr His  
 275 280 285  
 Trp His Pro Glu His Phe Cys Cys Val Ser Cys Gly Glu Pro Phe Gly

|   |     |     |
|---|-----|-----|
| 290   | 295 | 300 |
| Glu Glu Gly Phe His Glu Arg Glu Gly Arg Pro Tyr Cys Arg Arg Asp |     |     |
| 305   | 310 | 315 |
| Phe Leu Gln Leu Phe Ala Pro Arg Cys Gln Gly Cys Gln Gly Pro Ile |     | 320 |
|   | 325 | 330 |
| Leu Asp Asn Tyr Ile Ser Ala Leu Ser Ala Leu Trp His Pro Asp Cys |     | 335 |
|   | 340 | 345 |
| Phe Val Cys Arg Glu Cys Leu Ala Pro Phe Ser Gly Gly Ser Phe Phe |     | 350 |
|   | 355 | 360 |
| Glu His Glu Gly Arg Pro Leu Cys Glu Asn His Phe His Ala Gln Arg |     | 365 |
|   | 370 | 375 |
| Gly Ser Leu Cys Ala Thr Cys Gly Leu Pro Val Thr Gly Arg Cys Val |     | 380 |
|   | 385 | 390 |
| Ser Ala Leu Gly Arg Arg Phe His Pro Asp His Phe Thr Cys Thr Phe |     | 395 |
|   | 405 | 410 |
| Cys Leu Arg Pro Leu Thr Lys Gly Ser Phe Gln Glu Arg Ala Ser Lys |     | 415 |
|   | 420 | 425 |
| Pro Tyr Cys Gln Pro Cys Phe Leu Lys Leu Phe Gly                 |     | 430 |
|   | 435 | 440 |

&lt;210&gt; 1045

&lt;211&gt; 456

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1045

ccaatgtgct ggagatctgg aacctcgtgt tcatccagta taacagggag tcggatgggtg 60  
 ttctgaaacc tcttcccaag aaaagcatcg acacagggat gggcctagag aggctgggtgt 120



ctgtgctgca gaacaagatg tccaactacg acaccgacct tticcatgcct tacttcgaag 180  
 ccattcagaa gggcaccggc gcccnngccg tatactggga aggttgggtgc tgaggatgca 240  
 gacggaatcg acatggccta cggggttctg gctgaccacg cccggaccat cactgtggcg 300  
 ctggctgatg gcggccggcc tgacaacaca ggacgggggt acgtgctgag acggatcctt 360  
 cgccgagctg ttcggatctc ccatgagaaa ctgaatgcca gcagggggtt cttcgctaca 420  
 ttggttgatg ttgtcgttca atccctggga aacgct 456

<210> 1046

<211> 1322

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (143).. (952)

<400> 1046

cccaatgcat tggcggccgg cgggtgctgc gtctctcggg gtcgggggtg cgggtgccc 60  
 gtccccgcc tccctccgcg cgccgggtt cgccgccggc gtcgggcacg cggactacg 120  
 ccgcgacgag caggagggag cc atg gtg gcg gcg gcg cgc agg gcg gcg gcg 172

Met Val Ala Ala Ala Arg Arg Ala Ala Ala

1

5

10

gcg gcg gga agc ggg agc ggc ggc ggg ctc tgc ggc gga ggc acc gaa 220  
 Ala Ala Gly Ser Gly Ser Gly Gly Gly Leu Cys Gly Gly Gly Thr Glu

15

20

25

gga ggc agc gcc gag gca gag gga gcc aag atc gac gcc agt aag aac 268  
 Gly Gly Ser Ala Glu Ala Glu Gly Ala Lys Ile Asp Ala Ser Lys Asn

30

35

40

gag gag gat gaa ggc cat tca aac tcc tcc cca cga cac act gaa gca 316  
 Glu Glu Asp Glu Gly His Ser Asn Ser Ser Pro Arg His Thr Glu Ala  
 45 50 55  
 gcg gcg gca cag cgg gaa gaa tgg aaa atg ttt ata gga ggc ctt agc 364  
 Ala Ala Ala Gln Arg Glu Glu Trp Lys Met Phe Ile Gly Gly Leu Ser  
 60 65 70  
 tgg gac acc aca aag aaa gat ctg aag gac tac ttt tcc aaa ttt ggt 412  
 Trp Asp Thr Thr Lys Lys Asp Leu Lys Asp Tyr Phe Ser Lys Phe Gly  
 75 80 85 90  
 gaa gtt gta gac tgc act ctg aag tta gat cct atc aca ggg cga tca 460  
 Glu Val Val Asp Cys Thr Leu Lys Leu Asp Pro Ile Thr Gly Arg Ser  
 95 100 105  
 agg ggt ttt ggc ttt gtg cta ttt aaa gag tcg gag agt gta gat aag 508  
 Arg Gly Phe Gly Phe Val Leu Phe Lys Glu Ser Glu Ser Val Asp Lys  
 110 115 120  
 gtc atg gat cag aaa gaa cat aaa ttg aat ggg aaa gtc att gat cct 556  
 Val Met Asp Gln Lys Glu His Lys Leu Asn Gly Lys Val Ile Asp Pro  
 125 130 135  
 aaa agg gcc aaa gcc atg aaa aca aaa gag cct gtc aaa aaa att ttt 604  
 Lys Arg Ala Lys Ala Met Lys Thr Lys Glu Pro Val Lys Lys Ile Phe  
 140 145 150  
 gtt ggt ggc ctt tct cca gac aca cct gaa gaa aaa ata aga gag tac 652  
 Val Gly Gly Leu Ser Pro Asp Thr Pro Glu Glu Lys Ile Arg Glu Tyr  
 155 160 165 170  
 ttt ggt ggt ttt ggt gag gtt gaa tcc ata gag ctc cct atg gac aag 700  
 Phe Gly Gly Phe Gly Glu Val Glu Ser Ile Glu Leu Pro Met Asp Lys  
 175 180 185  
 aag acc aat aag agg cgt ggg ttc tgt ttt att acc ttt aag gaa gag 748  
 Lys Thr Asn Lys Arg Arg Gly Phe Cys Phe Ile Thr Phe Lys Glu Glu

|  |     |     |      |
|--|-----|-----|------|
| 190  | 195 | 200 |      |
| gag cca gtg aag aag ata atg gaa aag aaa tac cac aat gtt ggt ctt    |     |     | 796  |
| Glu Pro Val Lys Lys Ile Met Glu Lys Lys Tyr His Asn Val Gly Leu    |     |     |      |
| 205  | 210 | 215 |      |
| agt aaa tgt gaa ata aaa gta gcc atg tca aag gaa cag tat cag cag    |     |     | 844  |
| Ser Lys Cys Glu Ile Lys Val Ala Met Ser Lys Glu Gln Tyr Gln Gln    |     |     |      |
| 220  | 225 | 230 |      |
| cag cag cag tgg gga tct aga gga ggg ttt gca gca gag ctc gcg aag    |     |     | 892  |
| Gln Gln Gln Trp Gly Ser Arg Gly Gly Phe Ala Ala Glu Leu Ala Lys    |     |     |      |
| 235  | 240 | 245 | 250  |
| agg tgg aga tca gca gag tgg tta tgg gaa agt atc cag gcg agg tgg    |     |     | 940  |
| Arg Trp Arg Ser Ala Glu Trp Leu Trp Glu Ser Ile Gln Ala Arg Trp    |     |     |      |
| 255  | 260 | 265 |      |
| aca tca aaa tag ctacaaacca tactaaatta ttccatttgc aacttatecc        |     |     | 992  |
| Thr Ser Lys  |     |     |      |
| 270  |     |     |      |
| caacaggtgg tgaagcagta ttttccaatt tgaagattca tttgaagggtg gctcctgtcg |     |     | 1052 |
| actaatagca gttcaaacta aatTTTTTct atcaagttcc tgaatggaag tatgacgttg  |     |     | 1112 |
| ggtcctctg aagtttaatt ctgagttctc attaaaagaa ttgctttca ttgttttatt    |     |     | 1172 |
| tcttaattcg tatgcttcag tatcaatttg tgttttatgc ccccccccc cccagatt     |     |     | 1232 |
| gtagagcaag tcttgtgtta aaaaaagccc agtgtgacag tgtcatgatg tagtagtgc   |     |     | 1292 |
| ttactggttt ttaataaat ccttttgtat                                    |     |     | 1322 |

&lt;210&gt; 1047

&lt;211&gt; 269

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 1047

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Ala | Ala | Ala | Arg | Arg | Ala | Ala | Ala | Ala | Ala | Gly | Ser | Gly | Ser |
| 1   |     |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |
| Gly | Gly | Gly | Leu | Cys | Gly | Gly | Gly | Thr | Glu | Gly | Gly | Ser | Ala | Glu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Gly | Ala | Lys | Ile | Asp | Ala | Ser | Lys | Asn | Glu | Glu | Asp | Glu | Gly | His |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Asn | Ser | Ser | Pro | Arg | His | Thr | Glu | Ala | Ala | Ala | Ala | Gln | Arg | Glu |
|     | 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Glu | Trp | Lys | Met | Phe | Ile | Gly | Gly | Leu | Ser | Trp | Asp | Thr | Thr | Lys | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asp | Leu | Lys | Asp | Tyr | Phe | Ser | Lys | Phe | Gly | Glu | Val | Val | Asp | Cys | Thr |
|     |     |     |     |     | 85  |     |     |     |     | 90  |     |     |     | 95  |     |
| Leu | Lys | Leu | Asp | Pro | Ile | Thr | Gly | Arg | Ser | Arg | Gly | Phe | Gly | Phe | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Phe | Lys | Glu | Ser | Glu | Ser | Val | Asp | Lys | Val | Met | Asp | Gln | Lys | Glu |
|     |     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| His | Lys | Leu | Asn | Gly | Lys | Val | Ile | Asp | Pro | Lys | Arg | Ala | Lys | Ala | Met |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Lys | Thr | Lys | Glu | Pro | Val | Lys | Lys | Ile | Phe | Val | Gly | Gly | Leu | Ser | Pro |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Asp | Thr | Pro | Glu | Glu | Lys | Ile | Arg | Glu | Tyr | Phe | Gly | Gly | Phe | Gly | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Val | Glu | Ser | Ile | Glu | Leu | Pro | Met | Asp | Lys | Lys | Thr | Asn | Lys | Arg | Arg |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gly | Phe | Cys | Phe | Ile | Thr | Phe | Lys | Glu | Glu | Glu | Pro | Val | Lys | Lys | Ile |
|     |     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |
| Met | Glu | Lys | Lys | Tyr | His | Asn | Val | Gly | Leu | Ser | Lys | Cys | Glu | Ile | Lys |
|     | 210 |     |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |

Val Ala Met Ser Lys Glu Gln Tyr Gln Gln Gln Gln Gln Trp Gly Ser  
 225 230 235 240  
 Arg Gly Gly Phe Ala Ala Glu Leu Ala Lys Arg Trp Arg Ser Ala Glu  
 245 250 255  
 Trp Leu Trp Glu Ser Ile Gln Ala Arg Trp Thr Ser Lys  
 260 265

<210> 1048

<211> 503

<212> DNA

<213> Mus musculus

<400> 1048

ctcagccgta cattctgcag catcctgggtg ccgtgttaac tccctcaatg gaacatacca 60  
 tgtcactaca acctgcttcc atgatacagcc ctctgggtca gcagatgagt catctgtcac 120  
 tgggcagcac cggaacatac atgcctgcaa catcagccat gcaaggagcc tacttggcac 180  
 agtatacaca catgcagacc gcggcgggtgc ccgttgagga agcaagtggc cagcagcagg 240  
 tggctgtgga gacgtctaata gaccattctc catatacctt tccaccaat aagtaactgt 300  
 gagatgtacc gaaggnagtt cttacctgaa gaagggtgtg aaggctgaac aatcatggat 360  
 ttttctgata aattgtgctt taggaaattt ttgacagttt tgcacaggtt cttgaaaacg 420  
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<210> 1049

<211> 2827

<212> DNA

<213> Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (225).. (695)

&lt;400&gt; 1049

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 acgagaagtc cgaagcgcgc aggcggagac ggcgactaag gggagcgcga gagcagaagc 120  
 gcttgtgaaa gactgcgtgt ccgcaaggag ccgccgcgcc cggccccgcg cgcgacccgg 180  
 ctacgatttt ctggiggttc cgtcctggtg acagggcccg gggt atg acg act aat 236

Met Thr Thr Asn

1

ccc aag ccc aac aag gca ttg aag gtc aag aag gag gcg ggt gag aac 284

Pro Lys Pro Asn Lys Ala Leu Lys Val Lys Lys Glu Ala Gly Glu Asn

5

10

15

20

gcc cct gtt ctt agc gat gat gag ctg gtg tcc atg tca gtg cgg gag 332

Ala Pro Val Leu Ser Asp Asp Glu Leu Val Ser Met Ser Val Arg Glu

25

30

35

cta aac cag cac ctg cgg ggg ctc acc aag gag gag gtc act cgg ctg 380

Leu Asn Gln His Leu Arg Gly Leu Thr Lys Glu Glu Val Thr Arg Leu

40

45

50

aag cag cgg cgg cgc aca ctc aag aac aga ggc tac gcg gct agc tgt 428

Lys Gln Arg Arg Arg Thr Leu Lys Asn Arg Gly Tyr Ala Ala Ser Cys

55

60

65

cgc atc aag cgt gtg aca cag aaa gag gag ctg gaa cgg cag cgt gtg 476

Arg Ile Lys Arg Val Thr Gln Lys Glu Glu Leu Glu Arg Gln Arg Val

70

75

80

gag cta cag cag gag gtg gag aag ctg gct cga gag aac agc agc atg 524

Glu Leu Gln Gln Glu Val Glu Lys Leu Ala Arg Glu Asn Ser Ser Met

|  |      |     |     |  |
|--|------|-----|-----|--|
| 85   | 90   | 95  | 100 |  |
| cgg ctg gag cta gat gcc ctg cgc tcc aag tat gag gcc cta cag acc    | 572  |     |     |  |
| Arg Leu Glu Leu Asp Ala Leu Arg Ser Lys Tyr Glu Ala Leu Gln Thr    |      |     |     |  |
| 105  | 110  | 115 |     |  |
| ttc gct cgc acc gtg gcc cga ggg cct gtc aca ccc acc aag gtg gcc    | 620  |     |     |  |
| Phe Ala Arg Thr Val Ala Arg Gly Pro Val Thr Pro Thr Lys Val Ala    |      |     |     |  |
| 120  | 125  | 130 |     |  |
| acc acc agt gtc atc acc atc gtc aaa tct gcc gag ctc tcc tcc acc    | 668  |     |     |  |
| Thr Thr Ser Val Ile Thr Ile Val Lys Ser Ala Glu Leu Ser Ser Thr    |      |     |     |  |
| 135  | 140  | 145 |     |  |
| tct gta ccc ttc tca gcc gcc tcc tag tgtctgctgg ggccgggcag          | 715  |     |     |  |
| Ser Val Pro Phe Ser Ala Ala Ser                                    |      |     |     |  |
| 150  | 155  |     |     |  |
| ggtgcgggca gtggcacagc cctcatgcct atcccaggct ccctggcaca gattcctcat  | 775  |     |     |  |
| gtctacctgc ccactgtgaa ccctgcgggg ctgagggcag ggacagcagg aacagcaggg  | 835  |     |     |  |
| acagcagatg caggataaaa gggaagctct caggagccag tgcctcaagc aacgccctct  | 895  |     |     |  |
| caaattcttc ctccccctgg ggggtgtgtt ttaggagctg gcaggaacca catggccaac  | 955  |     |     |  |
| caggatgaac aactctaggc ccctgcagca gagtgtgagg actcgggtctt ccacttctcc | 1015 |     |     |  |
| ggtgcctgct tgtcagcacc gttggtgccg tccccctaa gggcctccag ctggggtaga   | 1075 |     |     |  |
| caccattctg cctgtccctt tctgggcttg ggccttcttg tccttatcaa agggcgctac  | 1135 |     |     |  |
| aacctgcttt agctcttaga gccaggctca tgtcctggga aacacttgca ggggctaattg | 1195 |     |     |  |
| tctgtgttcc tgtgtgtaca caggctacca tcacagcctg tggagactgg aaaccgatgc  | 1255 |     |     |  |
| caggtaggca catgggagag cctgtccagt atgtgcgccg agggttgcat gaatgtcatg  | 1315 |     |     |  |
| gagtgtccct ggaggtctgg tagactgcc attgtggtgc tgcaggggcc gcctgtccac   | 1375 |     |     |  |
| agagccagca aacagccagg ctggggttct ctggggctta gcagagggga gagagagaga  | 1435 |     |     |  |
| ggagcaggtg aagcctgaga ggtgctgaga gatgtcgctg gcaggtgaga cgtgtgttgc  | 1495 |     |     |  |
| tgcaaaaaga acaggaacga agtagacagg gatagtcgg agtcctggca gtcgaggtcc   | 1555 |     |     |  |
| aggggatgtg gaagaggcct gagaggcata gtattaagg acagagactg agtccggagg   | 1615 |     |     |  |
| gccttgtgga cacacccatg gtaggcaggt cagcaaggac cccaggcaga ctgtaagtgt  | 1675 |     |     |  |

caaatactct gcatctttgg tgcccacttg tiacctaaagc cttttccctcc ttcataagagc 1735  
 tctggggcca ctggacatct tgcgcttttt tactgaagga atcggtgicct ccaggtcctg 1795  
 gggaataatgg tagacaggga gtcaggggca ggctgagica cagccaggca cttagaaagc 1855  
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 ggatatttaa agagagaaga tattatatat atataattat acacacattt tatcgtacag 1975  
 atttttcata acaattttct ttcccagttt gatactgtag atctttatta atgcagagta 2035  
 ggttggacgg tggggtgggg aacgaaggcc cagggigcca acagccttcc tcagtccttc 2095  
 ctgcggtggc actgggcagc tgggtcactg gtgaagcctg ctccagcacg tgtcacgcig 2155  
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 tgtcactgaa atttcattgt cacaatttaa tatatggaca tttttattta aagataaaag 2515  
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 gaaaagatca agatcacaga ctgttggccc cctgtctgcc cctgcctca tggccaccac 2755  
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<210> 1050

<211> 156

<212> PRT

<213> Mus musculus

<400> 1050

Met Thr Thr Asn Pro Lys Pro Asn Lys Ala Leu Lys Val Lys Lys Glu



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|---|-----|-----|----|
| 1   | 5   | 10  | 15 |
| Ala Gly Glu Asn Ala Pro Val Leu Ser Asp Asp Glu Leu Val Ser Met |     |     |    |
| 20  | 25  | 30  |    |
| Ser Val Arg Glu Leu Asn Gln His Leu Arg Gly Leu Thr Lys Glu Glu |     |     |    |
| 35  | 40  | 45  |    |
| Val Thr Arg Leu Lys Gln Arg Arg Arg Thr Leu Lys Asn Arg Gly Tyr |     |     |    |
| 50  | 55  | 60  |    |
| Ala Ala Ser Cys Arg Ile Lys Arg Val Thr Gln Lys Glu Glu Leu Glu |     |     |    |
| 65  | 70  | 75  | 80 |
| Arg Gln Arg Val Glu Leu Gln Gln Glu Val Glu Lys Leu Ala Arg Glu |     |     |    |
| 85  | 90  | 95  |    |
| Asn Ser Ser Met Arg Leu Glu Leu Asp Ala Leu Arg Ser Lys Tyr Glu |     |     |    |
| 100   | 105 | 110 |    |
| Ala Leu Gln Thr Phe Ala Arg Thr Val Ala Arg Gly Pro Val Thr Pro |     |     |    |
| 115   | 120 | 125 |    |
| Thr Lys Val Ala Thr Thr Ser Val Ile Thr Ile Val Lys Ser Ala Glu |     |     |    |
| 130   | 135 | 140 |    |
| Leu Ser Ser Thr Ser Val Pro Phe Ser Ala Ala Ser                 |     |     |    |
| 145   | 150 | 155 |    |

&lt;210&gt; 1051

&lt;211&gt; 3850

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (14).. (2551)

&lt;400&gt; 1051

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|---|-----|
| cgaacgCctc gct atg ggg ccg cgc gcg ctc tcg ccc ctt gcc tct ctg  | 49  |
| Met Gly Pro Arg Ala Leu Ser Pro Leu Ala Ser Leu                 |     |
| 1 5 10  |     |
| cga cta agg tgg ctg ctg gcg tgt ggc ttg ctg ggc cca gtc ctc gag | 97  |
| Arg Leu Arg Trp Leu Leu Ala Cys Gly Leu Leu Gly Pro Val Leu Glu |     |
| 15 20 25  |     |
| gcc ggg cga cca gac ttg gaa cag act gtc cat ctt tct tct tat gaa | 145 |
| Ala Gly Arg Pro Asp Leu Glu Gln Thr Val His Leu Ser Ser Tyr Glu |     |
| 30 35 40  |     |
| att att act cct tgg aga tta act aga gaa aga agg gaa gct ctg ggg | 193 |
| Ile Ile Thr Pro Trp Arg Leu Thr Arg Glu Arg Arg Glu Ala Leu Gly |     |
| 45 50 55 60   |     |
| ccc agt tca cag cag atc tct tac gtc atc cag gcc caa gga aaa cag | 241 |
| Pro Ser Ser Gln Gln Ile Ser Tyr Val Ile Gln Ala Gln Gly Lys Gln |     |
| 65 70 75  |     |
| cat att att cac ttg gaa aga aac aca gac ctt tta cct aat gat ttt | 289 |
| His Ile Ile His Leu Glu Arg Asn Thr Asp Leu Leu Pro Asn Asp Phe |     |
| 80 85 90  |     |
| gta gtt tac acc tac gac aag gaa ggc tcc cta ctc tct gac cat ccc | 337 |
| Val Val Tyr Thr Tyr Asp Lys Glu Gly Ser Leu Leu Ser Asp His Pro |     |
| 95 100 105  |     |
| aac gta cag agc cat tgt cac tat cga ggc tat gtg gag gga gtg cag | 385 |
| Asn Val Gln Ser His Cys His Tyr Arg Gly Tyr Val Glu Gly Val Gln |     |
| 110 115 120   |     |
| aat tcc gcg gtt gct gtg agc gcc tgc ttt gga ctc aga ggc ttg ctg | 433 |
| Asn Ser Ala Val Ala Val Ser Ala Cys Phe Gly Leu Arg Gly Leu Leu |     |

|   |     |     |     |  |
|---|-----|-----|-----|--|
| 125   | 130 | 135 | 140 |  |
| cat ttg gag aat gcc agt ttt gga att gaa cct ctg cac aac agc tca | 481 |     |     |  |
| His Leu Glu Asn Ala Ser Phe Gly Ile Glu Pro Leu His Asn Ser Ser |     |     |     |  |
|   | 145 | 150 | 155 |  |
| cac ttt gag cac ata ttt tac ccc atg gat ggc atc cac cag gag cct | 529 |     |     |  |
| His Phe Glu His Ile Phe Tyr Pro Met Asp Gly Ile His Gln Glu Pro |     |     |     |  |
|   | 160 | 165 | 170 |  |
| ctg aga tgt gga gtc tct aac agg gac aca gag aag gaa ggc aca cag | 577 |     |     |  |
| Leu Arg Cys Gly Val Ser Asn Arg Asp Thr Glu Lys Glu Gly Thr Gln |     |     |     |  |
|   | 175 | 180 | 185 |  |
| ggg gat gag gag gag cat ccg agt gtc act cag ctg ctg cgc aga aga | 625 |     |     |  |
| Gly Asp Glu Glu Glu His Pro Ser Val Thr Gln Leu Leu Arg Arg Arg |     |     |     |  |
|   | 190 | 195 | 200 |  |
| aga gct gtt cta cca cag acc cgc tat gtg gag ctg ttc att gtt gta | 673 |     |     |  |
| Arg Ala Val Leu Pro Gln Thr Arg Tyr Val Glu Leu Phe Ile Val Val |     |     |     |  |
| 205   | 210 | 215 | 220 |  |
| gac aag gaa agg tac gac atg atg gga cgg aac cag act gct gtg aga | 721 |     |     |  |
| Asp Lys Glu Arg Tyr Asp Met Met Gly Arg Asn Gln Thr Ala Val Arg |     |     |     |  |
|   | 225 | 230 | 235 |  |
| gaa gag atg att cgc tta gca aac tac ctg gat agc atg tac atc atg | 769 |     |     |  |
| Glu Glu Met Ile Arg Leu Ala Asn Tyr Leu Asp Ser Met Tyr Ile Met |     |     |     |  |
|   | 240 | 245 | 250 |  |
| tta aac att cga att gtg ctg gtt gga cta gaa att tgg aca gac aga | 817 |     |     |  |
| Leu Asn Ile Arg Ile Val Leu Val Gly Leu Glu Ile Trp Thr Asp Arg |     |     |     |  |
|   | 255 | 260 | 265 |  |
| aat cct atc aat ata att gga gga gct gga gat gtg ctg ggc aac ttt | 865 |     |     |  |
| Asn Pro Ile Asn Ile Ile Gly Gly Ala Gly Asp Val Leu Gly Asn Phe |     |     |     |  |
|   | 270 | 275 | 280 |  |
| gtt cag tgg cgg gaa aag ttc ctt ata act cgt cgg aga cac gac agt | 913 |     |     |  |

2608/2644

agc act tgt aag ctc aag tca ttt gct gag tgt gca tat ggc gac tgt 1393  
 Ser Thr Cys Lys Leu Lys Ser Phe Ala Glu Cys Ala Tyr Gly Asp Cys  
 445 450 455 460  
 tgt aaa gat tgc cag ttc ctt cca gga ggc tcc atg tgc aga ggg aag 1441  
 Cys Lys Asp Cys Gln Phe Leu Pro Gly Gly Ser Met Cys Arg Gly Lys  
 465 470 475  
 acc agt gag tgt gat gtt cct gag tac tgc aac ggt tcc tct cag ttc 1489  
 Thr Ser Glu Cys Asp Val Pro Glu Tyr Cys Asn Gly Ser Ser Gln Phe  
 480 485 490  
 tgc ccg cca gat gtc ttc att cag aat gga tat cct tgc cag aac agc 1537  
 Cys Pro Pro Asp Val Phe Ile Gln Asn Gly Tyr Pro Cys Gln Asn Ser  
 495 500 505  
 aaa gcc tac tgc tac aat ggc atg tgc caa tat tat gac gcg cag tgt 1585  
 Lys Ala Tyr Cys Tyr Asn Gly Met Cys Gln Tyr Tyr Asp Ala Gln Cys  
 510 515 520  
 cag gtc atc ttt ggt tca aag gct aag gct gcc cca aga gat tgc ttc 1633  
 Gln Val Ile Phe Gly Ser Lys Ala Lys Ala Ala Pro Arg Asp Cys Phe  
 525 530 535 540  
 att gaa gtc aat tct aaa ggt gac aga ttt ggc aac tgt ggt ttc tcc 1681  
 Ile Glu Val Asn Ser Lys Gly Asp Arg Phe Gly Asn Cys Gly Phe Ser  
 545 550 555  
 ggc agt gag tac aag aag tgt gcc act ggg aac gcg ctg tgt gga aag 1729  
 Gly Ser Glu Tyr Lys Lys Cys Ala Thr Gly Asn Ala Leu Cys Gly Lys  
 560 565 570  
 ctt caa tgc gag aat gta cag gac atg ccg gtg ttt gga ata gta cca 1777  
 Leu Gln Cys Glu Asn Val Gln Asp Met Pro Val Phe Gly Ile Val Pro  
 575 580 585  
 gct atc att cag aca ccc agt cga ggc acc aaa tgc tgg ggt gtg gat 1825  
 Ala Ile Ile Gln Thr Pro Ser Arg Gly Thr Lys Cys Trp Gly Val Asp

|   |     |     |      |
|---|-----|-----|------|
| 590   | 595 | 600 |      |
| ttc cag ctt ggt tcc gac gtt cca gac cca ggg atg gtg aat gaa ggc |     |     | 1873 |
| Phe Gln Leu Gly Ser Asp Val Pro Asp Pro Gly Met Val Asn Glu Gly |     |     |      |
| 605   | 610 | 615 | 620  |
| acc aaa tgt gat gct ggc aag att tgc agg aat ttt cag tgt gta aat |     |     | 1921 |
| Thr Lys Cys Asp Ala Gly Lys Ile Cys Arg Asn Phe Gln Cys Val Asn |     |     |      |
| 625   | 630 | 635 |      |
| gct tct gtc ctg aat tat gac tgt gac att cag gga aaa tgt cat ggc |     |     | 1969 |
| Ala Ser Val Leu Asn Tyr Asp Cys Asp Ile Gln Gly Lys Cys His Gly |     |     |      |
| 640   | 645 | 650 |      |
| cat ggg gta tgt aac agc aat aag aat tgt cac tgt gaa gat ggc tgg |     |     | 2017 |
| His Gly Val Cys Asn Ser Asn Lys Asn Cys His Cys Glu Asp Gly Trp |     |     |      |
| 655   | 660 | 665 |      |
| gct ccc cca cac tgt gac acc aaa gga tat gga gga agc gtg gac agc |     |     | 2065 |
| Ala Pro Pro His Cys Asp Thr Lys Gly Tyr Gly Gly Ser Val Asp Ser |     |     |      |
| 670   | 675 | 680 |      |
| ggg ccg acg tat aat gca aag agc aca gca ctg agg gac ggg ctt ctg |     |     | 2113 |
| Gly Pro Thr Tyr Asn Ala Lys Ser Thr Ala Leu Arg Asp Gly Leu Leu |     |     |      |
| 685   | 690 | 695 | 700  |
| gtc ttc ttc ttc cta atc gtc ccc ctt gtt gcg gct gcc att ttc ctc |     |     | 2161 |
| Val Phe Phe Phe Leu Ile Val Pro Leu Val Ala Ala Ala Ile Phe Leu |     |     |      |
| 705   | 710 | 715 |      |
| ttt atc aag aga gat gaa cta cgg aaa acc ttc agg aag aag aga tca |     |     | 2209 |
| Phe Ile Lys Arg Asp Glu Leu Arg Lys Thr Phe Arg Lys Lys Arg Ser |     |     |      |
| 720   | 725 | 730 |      |
| caa atg tca gat ggc aga aat caa gca aac gtc tct aga cag cca gga |     |     | 2257 |
| Gln Met Ser Asp Gly Arg Asn Gln Ala Asn Val Ser Arg Gln Pro Gly |     |     |      |
| 735   | 740 | 745 |      |
| gat cct agt atc tcc aga cca cca ggg ggc cca aat gtc tcc aga cca |     |     | 2305 |

Asp Pro Ser Ile Ser Arg Pro Pro Gly Gly Pro Asn Val Ser Arg Pro  
 750 755 760  
 cca ggg ggc cca ggt gtc tcc aga cca cca ggg ggc cca ggt gtc tcc 2353  
 Pro Gly Gly Pro Gly Val Ser Arg Pro Pro Gly Gly Pro Gly Val Ser  
 765 770 775 780  
 aga cca cca ggg ggc cca ggt gtc tcc aga ccg cca cct ggg cat gga 2401  
 Arg Pro Pro Gly Gly Pro Gly Val Ser Arg Pro Pro Pro Gly His Gly  
 785 790 795  
 aac aga ttc cca gta cca acc tac gcc gcc aag cag cct gcg cag ttc 2449  
 Asn Arg Phe Pro Val Pro Thr Tyr Ala Ala Lys Gln Pro Ala Gln Phe  
 800 805 810  
 ccg tca agg cca cct cca cca caa ccg aaa ata tct tct cag gga aac 2497  
 Pro Ser Arg Pro Pro Pro Pro Gln Pro Lys Ile Ser Ser Gln Gly Asn  
 815 820 825  
 ttg att ccg gct cgg ccc gct cct gca cct cct tta tat agc tcc ctc 2545  
 Leu Ile Pro Ala Arg Pro Ala Pro Ala Pro Pro Leu Tyr Ser Ser Leu  
 830 835 840  
 acc tga tagtagaata ttagaatctt atttttttaa tgtcttcagg gaactgagca 2601  
 Thr  
 845  
 aatgtttgtt gttttttttt ttctctgatg ttttcttgaa aagcctttct cttccaacca 2661  
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 cgaaacacag gaatgtgcag gcgctccggg ggggtgtaaag tgaacgtttc catcgttiaga 2781  
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 aggaatgata ttgacactaa aattttaaac attttaaattt tticataatc tticataaag 3741  
 aagtttaata ataggtatat taactgaatt tcattagttt tttaaaataa tattgtttgt 3801  
 gtatatatac atattaaaat aaaaacattt acaacaaata aaaaaaaaaa 3850

<210> 1052

<211> 845

<212> PRT

<213> Mus musculus

<400> 1052

Met Gly Pro Arg Ala Leu Ser Pro Leu Ala Ser Leu Arg Leu Arg Trp  
 1 5 10 15  
 Leu Leu Ala Cys Gly Leu Leu Gly Pro Val Leu Glu Ala Gly Arg Pro  
 20 25 30  
 Asp Leu Glu Gln Thr Val His Leu Ser Ser Tyr Glu Ile Ile Thr Pro  
 35 40 45  
 Trp Arg Leu Thr Arg Glu Arg Arg Glu Ala Leu Gly Pro Ser Ser Gln  
 50 55 60  
 Gln Ile Ser Tyr Val Ile Gln Ala Gln Gly Lys Gln His Ile Ile His



|   |     |     |     |
|---|-----|-----|-----|
| 65  | 70  | 75  | 80  |
| Leu Glu Arg Asn Thr Asp Leu Leu Pro Asn Asp Phe Val Val Tyr Thr |     |     |     |
|   | 85  | 90  | 95  |
| Tyr Asp Lys Glu Gly Ser Leu Leu Ser Asp His Pro Asn Val Gln Ser |     |     |     |
|   | 100 | 105 | 110 |
| His Cys His Tyr Arg Gly Tyr Val Glu Gly Val Gln Asn Ser Ala Val |     |     |     |
|   | 115 | 120 | 125 |
| Ala Val Ser Ala Cys Phe Gly Leu Arg Gly Leu Leu His Leu Glu Asn |     |     |     |
|   | 130 | 135 | 140 |
| Ala Ser Phe Gly Ile Glu Pro Leu His Asn Ser Ser His Phe Glu His |     |     |     |
| 145   | 150 | 155 | 160 |
| Ile Phe Tyr Pro Met Asp Gly Ile His Gln Glu Pro Leu Arg Cys Gly |     |     |     |
|   | 165 | 170 | 175 |
| Val Ser Asn Arg Asp Thr Glu Lys Glu Gly Thr Gln Gly Asp Glu Glu |     |     |     |
|   | 180 | 185 | 190 |
| Glu His Pro Ser Val Thr Gln Leu Leu Arg Arg Arg Arg Ala Val Leu |     |     |     |
|   | 195 | 200 | 205 |
| Pro Gln Thr Arg Tyr Val Glu Leu Phe Ile Val Val Asp Lys Glu Arg |     |     |     |
|   | 210 | 215 | 220 |
| Tyr Asp Met Met Gly Arg Asn Gln Thr Ala Val Arg Glu Glu Met Ile |     |     |     |
| 225   | 230 | 235 | 240 |
| Arg Leu Ala Asn Tyr Leu Asp Ser Met Tyr Ile Met Leu Asn Ile Arg |     |     |     |
|   | 245 | 250 | 255 |
| Ile Val Leu Val Gly Leu Glu Ile Trp Thr Asp Arg Asn Pro Ile Asn |     |     |     |
|   | 260 | 265 | 270 |
| Ile Ile Gly Gly Ala Gly Asp Val Leu Gly Asn Phe Val Gln Trp Arg |     |     |     |
|   | 275 | 280 | 285 |
| Glu Lys Phe Leu Ile Thr Arg Arg Arg His Asp Ser Ala Gln Leu Val |     |     |     |
|   | 290 | 295 | 300 |

Leu Lys Lys Gly Phe Gly Gly Thr Ala Gly Met Ala Phe Val Gly Thr  
 305                                      310                                      315                                      320  
 Val Cys Ser Arg Ser His Ala Gly Gly Ile Asn Val Phe Gly Gln Ile  
    325                                      330                                      335  
 Thr Val Glu Thr Phe Ala Ser Ile Val Ala His Glu Leu Gly His Asn  
    340                                      345                                      350  
 Leu Gly Met Asn His Asp Asp Gly Arg Glu Cys Phe Cys Gly Ala Lys  
    355                                      360                                      365  
 Ser Cys Ile Met Asn Ser Gly Ala Ser Gly Ser Arg Asn Phe Ser Ser  
    370                                      375                                      380  
 Cys Ser Ala Glu Asp Phe Glu Lys Leu Thr Leu Asn Lys Gly Gly Ser  
 385                                      390                                      395                                      400  
 Cys Leu Leu Asn Ile Pro Lys Pro Asp Glu Ala Tyr Ser Ala Pro Ser  
    405                                      410                                      415  
 Cys Gly Asn Lys Leu Val Asp Pro Gly Glu Glu Cys Asp Cys Gly Thr  
    420                                      425                                      430  
 Ala Lys Glu Cys Glu Val Asp Pro Cys Cys Glu Gly Ser Thr Cys Lys  
    435                                      440                                      445  
 Leu Lys Ser Phe Ala Glu Cys Ala Tyr Gly Asp Cys Cys Lys Asp Cys  
    450                                      455                                      460  
 Gln Phe Leu Pro Gly Gly Ser Met Cys Arg Gly Lys Thr Ser Glu Cys  
 465                                      470                                      475                                      480  
 Asp Val Pro Glu Tyr Cys Asn Gly Ser Ser Gln Phe Cys Pro Pro Asp  
    485                                      490                                      495  
 Val Phe Ile Gln Asn Gly Tyr Pro Cys Gln Asn Ser Lys Ala Tyr Cys  
    500                                      505                                      510  
 Tyr Asn Gly Met Cys Gln Tyr Tyr Asp Ala Gln Cys Gln Val Ile Phe  
    515                                      520                                      525  
 Gly Ser Lys Ala Lys Ala Ala Pro Arg Asp Cys Phe Ile Glu Val Asn

|   |     |     |
|---|-----|-----|
| 530   | 535 | 540 |
| Ser Lys Gly Asp Arg Phe Gly Asn Cys Gly Phe Ser Gly Ser Glu Tyr |     |     |
| 545   | 550 | 555 |
| Lys Lys Cys Ala Thr Gly Asn Ala Leu Cys Gly Lys Leu Gln Cys Glu |     | 560 |
|   | 565 | 570 |
| Asn Val Gln Asp Met Pro Val Phe Gly Ile Val Pro Ala Ile Ile Gln |     | 575 |
|   | 580 | 585 |
| Thr Pro Ser Arg Gly Thr Lys Cys Trp Gly Val Asp Phe Gln Leu Gly |     | 590 |
|   | 595 | 600 |
| Ser Asp Val Pro Asp Pro Gly Met Val Asn Glu Gly Thr Lys Cys Asp |     | 605 |
|   | 610 | 615 |
| Ala Gly Lys Ile Cys Arg Asn Phe Gln Cys Val Asn Ala Ser Val Leu |     | 620 |
| 625   | 630 | 635 |
| Asn Tyr Asp Cys Asp Ile Gln Gly Lys Cys His Gly His Gly Val Cys |     | 640 |
|   | 645 | 650 |
| Asn Ser Asn Lys Asn Cys His Cys Glu Asp Gly Trp Ala Pro Pro His |     | 655 |
|   | 660 | 665 |
| Cys Asp Thr Lys Gly Tyr Gly Gly Ser Val Asp Ser Gly Pro Thr Tyr |     | 670 |
|   | 675 | 680 |
| Asn Ala Lys Ser Thr Ala Leu Arg Asp Gly Leu Leu Val Phe Phe Phe |     | 685 |
|   | 690 | 695 |
| Leu Ile Val Pro Leu Val Ala Ala Ala Ile Phe Leu Phe Ile Lys Arg |     | 700 |
| 705   | 710 | 715 |
| Asp Glu Leu Arg Lys Thr Phe Arg Lys Lys Arg Ser Gln Met Ser Asp |     | 720 |
|   | 725 | 730 |
| Gly Arg Asn Gln Ala Asn Val Ser Arg Gln Pro Gly Asp Pro Ser Ile |     | 735 |
|   | 740 | 745 |
| Ser Arg Pro Pro Gly Gly Pro Asn Val Ser Arg Pro Pro Gly Gly Pro |     | 750 |
|   | 755 | 760 |
|   |     | 765 |

Gly Val Ser Arg Pro Pro Gly Gly Pro Gly Val Ser Arg Pro Pro Gly  
 770 775 780  
 Gly Pro Gly Val Ser Arg Pro Pro Pro Gly His Gly Asn Arg Phe Pro  
 785 790 795 800  
 Val Pro Thr Tyr Ala Ala Lys Gln Pro Ala Gln Phe Pro Ser Arg Pro  
 805 810 815  
 Pro Pro Pro Gln Pro Lys Ile Ser Ser Gln Gly Asn Leu Ile Pro Ala  
 820 825 830  
 Arg Pro Ala Pro Ala Pro Pro Leu Tyr Ser Ser Leu Thr  
 835 840 845

<210> 1053

<211> 145

<212> DNA

<213> Mus musculus

<400> 1053

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 ggcgtaggca agagcgccit gacgatacag ctaattcaga atcactttgt ggatgagtac 120  
 gaccctacga tagaggtaac gctgc 145

<210> 1054

<211> 2495

<212> DNA

<213> Mus musculus

<220>

&lt;221&gt; CDS

&lt;222&gt; (36).. (1280)

&lt;400&gt; 1054

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                                     Met Ala Met Val Val Ser
                                     1           5

acg tgg cgc gac ccc cag gac gag gtg ccc ggc tct cag ggc agc cag      101
Thr Trp Arg Asp Pro Gln Asp Glu Val Pro Gly Ser Gln Gly Ser Gln
          10           15           20

gcc tcg cag gcg ccg ccc gtg ccg ggc ccg ccg cct ggc ccc ccg cac      149
Ala Ser Gln Ala Pro Pro Val Pro Gly Pro Pro Pro Gly Pro Pro His
          25           30           35

acg cca cag acg ccc ggc caa ggg ggc ccg gcc agc acg ccg gcc cag      197
Thr Pro Gln Thr Pro Gly Gln Gly Gly Pro Ala Ser Thr Pro Ala Gln
          40           45           50

aca gcg gct ggc ggc cag ggc ggc cct ggc ggc ccg ggc agc gac aag      245
Thr Ala Ala Gly Gly Gln Gly Gly Pro Gly Gly Pro Gly Ser Asp Lys
          55           60           65           70

cag cag cag cag cag cac atc gag tgc gtg gtg tgc ggg gac aag tcg      293
Gln Gln Gln Gln Gln His Ile Glu Cys Val Val Cys Gly Asp Lys Ser
          75           80           85

agc ggc aag cac tac ggc cag ttc acg tgc gag ggc tgc aag agc ttc      341
Ser Gly Lys His Tyr Gly Gln Phe Thr Cys Glu Gly Cys Lys Ser Phe
          90           95           100

ttc aag cgc agc gtg cgg agg aac ctg agc tac acg tgc cgc gcc aac      389
Phe Lys Arg Ser Val Arg Arg Asn Leu Ser Tyr Thr Cys Arg Ala Asn
          105           110           115

cgg aac tgt ccc atc gac cag cac cac cgc aac cag tgc cag tac tgc      437

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Arg Asn Cys Pro Ile Asp Gln His His Arg Asn Gln Cys Gln Tyr Cys  
 120 125 130  
 cgc ctc aaa aag tgc ctc aaa gtg ggc atg aga cgg gaa gct gta cag 485  
 Arg Leu Lys Lys Cys Leu Lys Val Gly Met Arg Arg Glu Ala Val Gln  
 135 140 145 150  
 aga ggc agg atg cct cct acc cag cct acc cac ggg cag ttt gcc ctg 533  
 Arg Gly Arg Met Pro Pro Thr Gln Pro Thr His Gly Gln Phe Ala Leu  
 155 160 165  
 acc aac ggg gac ccc ctc aac tgc cac tcg tac ctg tcc gga tat att 581  
 Thr Asn Gly Asp Pro Leu Asn Cys His Ser Tyr Leu Ser Gly Tyr Ile  
 170 175 180  
 tcc ctg ctg ctg cgc gcg gag ccc tac ccc acg tcg cgc ttc ggc agt 629  
 Ser Leu Leu Leu Arg Ala Glu Pro Tyr Pro Thr Ser Arg Phe Gly Ser  
 185 190 195  
 cag tgc atg cag cct aac aac atc atg ggc atc gag aac att tgc gaa 677  
 Gln Cys Met Gln Pro Asn Asn Ile Met Gly Ile Glu Asn Ile Cys Glu  
 200 205 210  
 ctg gcc gca cgg atg ctc ttc agc gcc gtt gag tgg gcc cgg aac atc 725  
 Leu Ala Ala Arg Met Leu Phe Ser Ala Val Glu Trp Ala Arg Asn Ile  
 215 220 225 230  
 ccc ttc ttc cct gac ctg cag atc acg gac cag gtg gcc ctc ctt cgc 773  
 Pro Phe Phe Pro Asp Leu Gln Ile Thr Asp Gln Val Ala Leu Leu Arg  
 235 240 245  
 ctc acc tgg agc gag ctg ttc gtg ttg aat gcg gcc cag tgc tcc atg 821  
 Leu Thr Trp Ser Glu Leu Phe Val Leu Asn Ala Ala Gln Cys Ser Met  
 250 255 260  
 ccc ctc cat gtc gcc ccg ctc ctt gcc gct gct ggc ctg cac gct tca 869  
 Pro Leu His Val Ala Pro Leu Leu Ala Ala Ala Gly Leu His Ala Ser  
 265 270 275

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ccc atg tca gcc gac cgg gtg gtc gct ttt atg gac cac ata cgg atc 917
Pro Met Ser Ala Asp Arg Val Val Ala Phe Met Asp His Ile Arg Ile
      280              285              290

ttc caa gag caa gtg gag aag ctc aag gca ctg cac gtc gac tcc gcc 965
Phe Gln Glu Gln Val Glu Lys Leu Lys Ala Leu His Val Asp Ser Ala
295              300              305              310

gag tat agc tgc ctc aag gcc ata gtc ctg ttc acc tca gat gcc tgt 1013
Glu Tyr Ser Cys Leu Lys Ala Ile Val Leu Phe Thr Ser Asp Ala Cys
      315              320              325

ggt ctg tct gat gta gcc cat gtg gaa agc ttg cag gaa aag tcc cag 1061
Gly Leu Ser Asp Val Ala His Val Glu Ser Leu Gln Glu Lys Ser Gln
      330              335              340

tgt gct ttg gaa gag tac gtt agg agc cag tac ccc aac cag cca aca 1109
Cys Ala Leu Glu Glu Tyr Val Arg Ser Gln Tyr Pro Asn Gln Pro Thr
      345              350              355

cgg ttc gga aag ctc ttg ctt cgt ctc cct tcc ctc cgc acg gtc tcc 1157
Arg Phe Gly Lys Leu Leu Leu Arg Leu Pro Ser Leu Arg Thr Val Ser
      360              365              370

tcc tca gtc ata gag caa ttg ttt ttc gtc cgt ttg gta ggt aaa acc 1205
Ser Ser Val Ile Glu Gln Leu Phe Phe Val Arg Leu Val Gly Lys Thr
375              380              385              390

ccc atc gaa acc ctc atc cgg gat atg tta ctg tcc ggc agc agt ttt 1253
Pro Ile Glu Thr Leu Ile Arg Asp Met Leu Leu Ser Gly Ser Ser Phe
      395              400              405

aac tgg cca tat atg gca att caa taa ataaataaaa ataagaaggg 1300
Asn Trp Pro Tyr Met Ala Ile Gln
      410              415

ggagtgaaac agagaaagaa aaaggcaaaa gactgggtttg ttgcttaaat ttccttctgt 1360
taagaaagga tataaaagga tgttacaagt ttgctaaaag aagagagggg agaattttaa 1420

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tggactgiga atttcagaaa gagagagact gccaaatgaa cttttacaga atgcattaaa 1480  
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 aaaaaggaaa ttagtctttt tttctttttg gtaaattttt gaaaaatatt gctaaaagtg 1600  
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 aatagcatag gaaaacataa aactttaag gcaactcaga gatgggtggaa atgcacttac 1900  
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 gtttgtatat ttgcaagccc ttigtattat aattgttgat atttccccct tttaaaaaat 2260  
 accattgaaa tcagcatgac aaaataacac tgttggcact tataggtaac gtgattgatt 2320  
 cagtatcitta gagtttacag ttigtgtttt taaaaaactg aaggtttttt ttttaagtgc 2380  
 aacatttctg tatactgtaa aagttataat aactgaactg ttgggtcgag tctttgtgtg 2440  
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<210> 1055

<211> 414

<212> PRT

<213> Mus musculus

<400> 1055

Met Ala Met Val Val Ser Thr Trp Arg Asp Pro Gln Asp Glu Val Pro

1

5

10

15

Gly Ser Gln Gly Ser Gln Ala Ser Gln Ala Pro Pro Val Pro Gly Pro



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 20  |     | 25  |     | 30  |     |     |     |     |     |     |     |     |     |     |
| Pro | Pro | Gly | Pro | Pro | His | Thr | Pro | Gln | Thr | Pro | Gly | Gln | Gly | Gly | Pro |
|     | 35  |     | 40  |     | 45  |     |     |     |     |     |     |     |     |     |     |
| Ala | Ser | Thr | Pro | Ala | Gln | Thr | Ala | Ala | Gly | Gly | Gln | Gly | Gly | Pro | Gly |
|     | 50  |     | 55  |     | 60  |     |     |     |     |     |     |     |     |     |     |
| Gly | Pro | Gly | Ser | Asp | Lys | Gln | Gln | Gln | Gln | Gln | His | Ile | Glu | Cys | Val |
|     | 65  |     | 70  |     | 75  |     |     |     |     |     |     |     |     |     | 80  |
| Val | Cys | Gly | Asp | Lys | Ser | Ser | Gly | Lys | His | Tyr | Gly | Gln | Phe | Thr | Cys |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     |     | 95  |
| Glu | Gly | Cys | Lys | Ser | Phe | Phe | Lys | Arg | Ser | Val | Arg | Arg | Asn | Leu | Ser |
|     | 100 |     |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Tyr | Thr | Cys | Arg | Ala | Asn | Arg | Asn | Cys | Pro | Ile | Asp | Gln | His | His | Arg |
|     | 115 |     |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Asn | Gln | Cys | Gln | Tyr | Cys | Arg | Leu | Lys | Lys | Cys | Leu | Lys | Val | Gly | Met |
|     | 130 |     |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |
| Arg | Arg | Glu | Ala | Val | Gln | Arg | Gly | Arg | Met | Pro | Pro | Thr | Gln | Pro | Thr |
|     | 145 |     |     |     |     |     |     | 150 |     |     |     |     | 155 |     | 160 |
| His | Gly | Gln | Phe | Ala | Leu | Thr | Asn | Gly | Asp | Pro | Leu | Asn | Cys | His | Ser |
|     |     |     | 165 |     |     |     |     |     |     |     |     |     | 170 |     | 175 |
| Tyr | Leu | Ser | Gly | Tyr | Ile | Ser | Leu | Leu | Leu | Arg | Ala | Glu | Pro | Tyr | Pro |
|     | 180 |     |     |     |     |     |     |     |     |     |     |     | 185 |     | 190 |
| Thr | Ser | Arg | Phe | Gly | Ser | Gln | Cys | Met | Gln | Pro | Asn | Asn | Ile | Met | Gly |
|     | 195 |     |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |
| Ile | Glu | Asn | Ile | Cys | Glu | Leu | Ala | Ala | Arg | Met | Leu | Phe | Ser | Ala | Val |
|     | 210 |     |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |
| Glu | Trp | Ala | Arg | Asn | Ile | Pro | Phe | Phe | Pro | Asp | Leu | Gln | Ile | Thr | Asp |
|     | 225 |     |     |     |     |     |     | 230 |     |     |     |     | 235 |     | 240 |
| Gln | Val | Ala | Leu | Leu | Arg | Leu | Thr | Trp | Ser | Glu | Leu | Phe | Val | Leu | Asn |
|     |     |     | 245 |     |     |     |     |     |     |     |     |     | 250 |     | 255 |

Ala Ala Gln Cys Ser Met Pro Leu His Val Ala Pro Leu Leu Ala Ala  
 260 265 270  
 Ala Gly Leu His Ala Ser Pro Met Ser Ala Asp Arg Val Val Ala Phe  
 275 280 285  
 Met Asp His Ile Arg Ile Phe Gln Glu Gln Val Glu Lys Leu Lys Ala  
 290 295 300  
 Leu His Val Asp Ser Ala Glu Tyr Ser Cys Leu Lys Ala Ile Val Leu  
 305 310 315 320  
 Phe Thr Ser Asp Ala Cys Gly Leu Ser Asp Val Ala His Val Glu Ser  
 325 330 335  
 Leu Gln Glu Lys Ser Gln Cys Ala Leu Glu Glu Tyr Val Arg Ser Gln  
 340 345 350  
 Tyr Pro Asn Gln Pro Thr Arg Phe Gly Lys Leu Leu Leu Arg Leu Pro  
 355 360 365  
 Ser Leu Arg Thr Val Ser Ser Ser Val Ile Glu Gln Leu Phe Phe Val  
 370 375 380  
 Arg Leu Val Gly Lys Thr Pro Ile Glu Thr Leu Ile Arg Asp Met Leu  
 385 390 395 400  
 Leu Ser Gly Ser Ser Phe Asn Trp Pro Tyr Met Ala Ile Gln  
 405 410

<210> 1056

<211> 439

<212> DNA

<213> Mus musculus

<400> 1056

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 gcgcaggctg tactatigtg actgcactgc tgtccctggc tctgggccag ccagtgttgc 180  
 agaacctggc tatgactggg gaggtctccc tcactggcaa ggtgttgcct gtgggtggca 240  
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 agaacagaaa ggactactcg gatttagctc cttttatcac agagggcctt gaagttcact 360  
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<210> 1057

<211> 602

<212> DNA

<213> Mus musculus

<400> 1057

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 gtatgattga atactacgat gntgagtggc tgctatatcc tccgtccctg cgtcgtactc 180  
 catcgtggga gtccattaag gacttctttg acgtgagat caagaagctc ggtngttgag 240  
 aactgctact tccccatatt tagtgcttca ggctgcgtta gagaaagaga agaatacat 300  
 cgaagacttt gctcctgagn gttgcttgng gttacaagat caggaaaaac atgagttggc 360  
 agagccaatt gccagttcgt cctactgagt gaaacagtgg atgtatccgg cataatgctaa 420  
 atgggggtga gtgcacaga gacctgcccg tcaggctcaa ccagttgtgc aatgtgtgtc 480  
 gctgggagtt caaacacca cagcctttcc tccgaactcg ggagttcgtg tggcaggatg 540  
 ggcacagcgc ctttgcgact ttggaggagg cactgatgag gtttacagac cttgagttat 600  
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<210> 1058

<211> 519

<212> DNA

<213> Mus musculus

<400> 1058

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aaggtaccac tgaggagatc tgccagatct acttaaggcg catcctgcac acgtactaca 180  
agtttgacta caaggcccat cagcggcacg ttactcctcc tgaaggatcc tcaaagtcig 240  
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agtacatcta tgccaaggac cgtacagacc ggatccgtac ctgtgccatc ctctgccata 360  
tctaccatca tgcgctccac tcccgttgt atcaggcccg tgacctcatg ctcatgagcc 420  
acctacagga caacattcag cagcagacc cgccggtgca gatcctgtat aaccgtacta 480  
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<210> 1059

<211> 495

<212> DNA

<213> Mus musculus

<400> 1059

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gccgttcgcc ttcgtgcgct tcgaggacct gcgagatgct gaggatgcga tctatggaag 180  
aaacggttac gattatggcc agtgtcgact ccgtgtggag ttcccagga cttacggagg 240  
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agttcttggt tcaggacttc ctccatcagg cagctggcag gacctgaaag atcacatgcg 360  
agaagctggg gatgtctgtt atgcagacgt acagaaggac ggaatgggga tggttgaata 420

tttgagaaaa gaggacatgg aatatgctct gcgtaaactg gatgacacca aattccgctc 480  
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<210> 1060

<211> 286

<212> DNA

<213> Mus musculus

<400> 1060

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 agacagtcaa ggagaaaaca tgtttctgcg ctgtgtgagc gagcttgtga tagaaagtcg 180  
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<210> 1061

<211> 2275

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (229).. (2202)

<400> 1061

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cgacatgaac ccgctggctt cgcgagcagt ccggaccac gatcgctttt ggcaaccaga 180  
 accggcgctt cagcccccg ggtagctgc agcccgccgc ccagacac atg gcc ccg 237

Met Ala Pro

1

agc cca aga ccc cag cat gtc ctg cac tgg agg gac gcc cac aac ttc 285  
 Ser Pro Arg Pro Gln His Val Leu His Trp Arg Asp Ala His Asn Phe

5

10

15

tat ctc ctg tcc cca ctg atg ggc ttg ctc agt cgg gcc tgg agc cgc 333  
 Tyr Leu Leu Ser Pro Leu Met Gly Leu Leu Ser Arg Ala Trp Ser Arg

20

25

30

35

ctg agg ggc cca gaa gtc cca gag gca tgg ctg gca aaa aca gta aca 381  
 Leu Arg Gly Pro Glu Val Pro Glu Ala Trp Leu Ala Lys Thr Val Thr

40

45

50

gga gca gat cag ata gaa gct gcg gct ctg ctg aca cct acc cct gtc 429  
 Gly Ala Asp Gln Ile Glu Ala Ala Ala Leu Leu Thr Pro Thr Pro Val

55

60

65

tct ggt aac ctc ctc cct cat ggg gag act gaa gaa agt gga tct cct 477  
 Ser Gly Asn Leu Leu Pro His Gly Glu Thr Glu Glu Ser Gly Ser Pro

70

75

80

gaa cag agt caa gca gcc cag agg ctc tgc ctt gtg gaa gct gaa agt 525  
 Glu Gln Ser Gln Ala Ala Gln Arg Leu Cys Leu Val Glu Ala Glu Ser

85

90

95

tcc cct cct gaa act tgg gga ctt tca aat gtt gat gag tac aat gca 573  
 Ser Pro Pro Glu Thr Trp Gly Leu Ser Asn Val Asp Glu Tyr Asn Ala

100

105

110

115

aag cca gga caa gat gac ctt aga gag aag gaa atg gaa cgc aca gct 621  
 Lys Pro Gly Gln Asp Asp Leu Arg Glu Lys Glu Met Glu Arg Thr Ala

120

125

130

ggc aag gcc aca cta cag ccc gct ggc ctg caa ggg gct gat aag agg 669

|   |      |
|---|------|
| Gly Lys Ala Thr Leu Gln Pro Ala Gly Leu Gln Gly Ala Asp Lys Arg |      |
| 135   | 140  |
| 145   |      |
| ctt ggg gag gtg gtg gct aga gaa gag gga gtg gct gag ccc gct tat | 717  |
| Leu Gly Glu Val Val Ala Arg Glu Glu Gly Val Ala Glu Pro Ala Tyr |      |
| 150   | 155  |
| 160   |      |
| ccc aca tca cag ctg gag ggt ggt cca gct gag aat gaa gag gat gga | 765  |
| Pro Thr Ser Gln Leu Glu Gly Gly Pro Ala Glu Asn Glu Glu Asp Gly |      |
| 165   | 170  |
| 175   |      |
| gaa aca gtg aag act tac caa gct tct gct gct tcc ata gct ccg gga | 813  |
| Glu Thr Val Lys Thr Tyr Gln Ala Ser Ala Ala Ser Ile Ala Pro Gly |      |
| 180   | 185  |
| 190   | 195  |
| tac aaa ccc agc acc cct gtg cct ttc ttg ggg gag gca gaa cat caa | 861  |
| Tyr Lys Pro Ser Thr Pro Val Pro Phe Leu Gly Glu Ala Glu His Gln |      |
| 200   | 205  |
| 210   |      |
| gcc acg gaa gaa aaa gga aca gaa aac aag gct gac ccc tcc aac tct | 909  |
| Ala Thr Glu Glu Lys Gly Thr Glu Asn Lys Ala Asp Pro Ser Asn Ser |      |
| 215   | 220  |
| 225   |      |
| cct tct tca ggc tcc cac tcc aga gcc tgg gag tac tac tct aga gag | 957  |
| Pro Ser Ser Gly Ser His Ser Arg Ala Trp Glu Tyr Tyr Ser Arg Glu |      |
| 230   | 235  |
| 240   |      |
| aag cct aag cag gag gga gaa gcc aag gta gag gca cac agg gca ggg | 1005 |
| Lys Pro Lys Gln Glu Gly Glu Ala Lys Val Glu Ala His Arg Ala Gly |      |
| 245   | 250  |
| 255   |      |
| cag ggt cac cct tgt cgg aat gct gag gct gag gaa gga gga cct gag | 1053 |
| Gln Gly His Pro Cys Arg Asn Ala Glu Ala Glu Glu Gly Gly Pro Glu |      |
| 260   | 265  |
| 270   | 275  |
| aca act ttt gtc tgt act gga aat gcc ttc ctg aag gcc tgg gtg tat | 1101 |
| Thr Thr Phe Val Cys Thr Gly Asn Ala Phe Leu Lys Ala Trp Val Tyr |      |
| 280   | 285  |
| 290   |      |

|   |      |
|---|------|
| cgc cca gga gag gac aca gag gaa gaa gac aac agc gat tcg gat tca | 1149 |
| Arg Pro Gly Glu Asp Thr Glu Glu Glu Asp Asn Ser Asp Ser Asp Ser |      |
| 295 300 305   |      |
| gct gag gaa gac aca gct cag acc ggt gcc acc ccc cat aca agt gcc | 1197 |
| Ala Glu Glu Asp Thr Ala Gln Thr Gly Ala Thr Pro His Thr Ser Ala |      |
| 310 315 320   |      |
| ttc ctg aag gcc tgg gtg tat cgc cca gga gag gac aca gag gaa gaa | 1245 |
| Phe Leu Lys Ala Trp Val Tyr Arg Pro Gly Glu Asp Thr Glu Glu Glu |      |
| 325 330 335   |      |
| gac agc gat tcg gat tca gct gag gaa gac aca gct cag acc ggt gcc | 1293 |
| Asp Ser Asp Ser Asp Ser Ala Glu Glu Asp Thr Ala Gln Thr Gly Ala |      |
| 340 345 350 355   |      |
| acc ccc cat aca agt gcc ttc ctg aag gcc tgg gtg tat cgc cca gga | 1341 |
| Thr Pro His Thr Ser Ala Phe Leu Lys Ala Trp Val Tyr Arg Pro Gly |      |
| 360 365 370   |      |
| gag gac aca gag gaa gaa aac agc gat ttg gat tca gct gag gaa gac | 1389 |
| Glu Asp Thr Glu Glu Glu Asn Ser Asp Leu Asp Ser Ala Glu Glu Asp |      |
| 375 380 385   |      |
| aca gct cag acc ggt gcc acc ccc cat aca agt gcc ttc ctg aag gcc | 1437 |
| Thr Ala Gln Thr Gly Ala Thr Pro His Thr Ser Ala Phe Leu Lys Ala |      |
| 390 395 400   |      |
| tgg gtg tat cgc cca gga gag gac aca gag gaa gaa aac agc gat ttg | 1485 |
| Trp Val Tyr Arg Pro Gly Glu Asp Thr Glu Glu Glu Asn Ser Asp Leu |      |
| 405 410 415   |      |
| gat tca gct gag gaa gac aca gct cag acc ggt gcc acc cca cat aca | 1533 |
| Asp Ser Ala Glu Glu Asp Thr Ala Gln Thr Gly Ala Thr Pro His Thr |      |
| 420 425 430 435   |      |
| agt ccc ttc ctg aag gcc tgg gtg tat cgc cca gga gag gac aca gaa | 1581 |
| Ser Pro Phe Leu Lys Ala Trp Val Tyr Arg Pro Gly Glu Asp Thr Glu |      |



|   |     |     |      |
|---|-----|-----|------|
| 440   | 445 | 450 |      |
| gat gac aca gaa gag gaa gag gac agt gag aat gtg gcc cca ggt gac |     |     | 1629 |
| Asp Asp Thr Glu Glu Glu Glu Asp Ser Glu Asn Val Ala Pro Gly Asp |     |     |      |
| 455   | 460 | 465 |      |
| tca gaa aca gct gac tca agc cag agt ccc tgc ctt cag ccc cag cgt |     |     | 1677 |
| Ser Glu Thr Ala Asp Ser Ser Gln Ser Pro Cys Leu Gln Pro Gln Arg |     |     |      |
| 470   | 475 | 480 |      |
| tgt cta cca gga gag aag acc aag gga cgt ggg gaa gag ccc cct ctc |     |     | 1725 |
| Cys Leu Pro Gly Glu Lys Thr Lys Gly Arg Gly Glu Glu Pro Pro Leu |     |     |      |
| 485   | 490 | 495 |      |
| ttc cag gtg gcc ttc tat tta ccc gga gag aag cca gaa tca cct tgg |     |     | 1773 |
| Phe Gln Val Ala Phe Tyr Leu Pro Gly Glu Lys Pro Glu Ser Pro Trp |     |     |      |
| 500   | 505 | 510 | 515  |
| gct gca cct aag ctg ccc ctt cga ctg cag agg cgg ctc aga ttg ttc |     |     | 1821 |
| Ala Ala Pro Lys Leu Pro Leu Arg Leu Gln Arg Arg Leu Arg Leu Phe |     |     |      |
| 520   | 525 | 530 |      |
| aaa gcc ccc acc cgg gat cag gac ccc gag att cct cta aaa gct cgg |     |     | 1869 |
| Lys Ala Pro Thr Arg Asp Gln Asp Pro Glu Ile Pro Leu Lys Ala Arg |     |     |      |
| 535   | 540 | 545 |      |
| aag gta cac ttc gct gag aaa gtc aca gtc cat ttc ctt gct gtc tgg |     |     | 1917 |
| Lys Val His Phe Ala Glu Lys Val Thr Val His Phe Leu Ala Val Trp |     |     |      |
| 550   | 555 | 560 |      |
| gca gga cca gcc caa gct gcc cgt cga ggt ccc tgg gag cag ttt gca |     |     | 1965 |
| Ala Gly Pro Ala Gln Ala Ala Arg Arg Gly Pro Trp Glu Gln Phe Ala |     |     |      |
| 565   | 570 | 575 |      |
| cga gat cga agc cgc ttt gct cga cgc att gcc cag gca gag gag aag |     |     | 2013 |
| Arg Asp Arg Ser Arg Phe Ala Arg Arg Ile Ala Gln Ala Glu Glu Lys |     |     |      |
| 580   | 585 | 590 | 595  |
| ctg ggt ccc tac ctt acc cct gat tcc agg gcc aga gca tgg gca cgc |     |     | 2061 |

Leu Gly Pro Tyr Leu Thr Pro Asp Ser Arg Ala Arg Ala Trp Ala Arg  
                     600                    605                    610  
 ctt aga aac cca tct ctt cca cag tcc gag cct cgc tct tcc tct gag 2109  
 Leu Arg Asn Pro Ser Leu Pro Gln Ser Glu Pro Arg Ser Ser Ser Glu  
                     615                    620                    625  
 gcc act ccc ttg acc caa gat gtg acc aca ccc tct ccc ctt ccc agt 2157  
 Ala Thr Pro Leu Thr Gln Asp Val Thr Thr Pro Ser Pro Leu Pro Ser  
                     630                    635                    640  
 gaa acc cct tcg ccc agc ctg tac ttg gga ggg agg cgg ggc taa 2202  
 Glu Thr Pro Ser Pro Ser Leu Tyr Leu Gly Gly Arg Arg Gly  
                     645                    650                    655  
 gcctgagtag tttcctatta tttatttatt tattttattg aataagaaat aaagcctttt 2262  
 aatttgtagt gat 2275

<210> 1062

<211> 657

<212> PRT

<213> Mus musculus

<400> 1062

Met Ala Pro Ser Pro Arg Pro Gln His Val Leu His Trp Arg Asp Ala  
     1                    5                    10                    15  
 His Asn Phe Tyr Leu Leu Ser Pro Leu Met Gly Leu Leu Ser Arg Ala  
                     20                    25                    30  
 Trp Ser Arg Leu Arg Gly Pro Glu Val Pro Glu Ala Trp Leu Ala Lys  
                     35                    40                    45  
 Thr Val Thr Gly Ala Asp Gln Ile Glu Ala Ala Ala Leu Leu Thr Pro  
                     50                    55                    60

Thr Pro Val Ser Gly Asn Leu Leu Pro His Gly Glu Thr Glu Glu Ser  
 65 70 75 80  
 Gly Ser Pro Glu Gln Ser Gln Ala Ala Gln Arg Leu Cys Leu Val Glu  
 85 90 95  
 Ala Glu Ser Ser Pro Pro Glu Thr Trp Gly Leu Ser Asn Val Asp Glu  
 100 105 110  
 Tyr Asn Ala Lys Pro Gly Gln Asp Asp Leu Arg Glu Lys Glu Met Glu  
 115 120 125  
 Arg Thr Ala Gly Lys Ala Thr Leu Gln Pro Ala Gly Leu Gln Gly Ala  
 130 135 140  
 Asp Lys Arg Leu Gly Glu Val Val Ala Arg Glu Glu Gly Val Ala Glu  
 145 150 155 160  
 Pro Ala Tyr Pro Thr Ser Gln Leu Glu Gly Gly Pro Ala Glu Asn Glu  
 165 170 175  
 Glu Asp Gly Glu Thr Val Lys Thr Tyr Gln Ala Ser Ala Ala Ser Ile  
 180 185 190  
 Ala Pro Gly Tyr Lys Pro Ser Thr Pro Val Pro Phe Leu Gly Glu Ala  
 195 200 205  
 Glu His Gln Ala Thr Glu Glu Lys Gly Thr Glu Asn Lys Ala Asp Pro  
 210 215 220  
 Ser Asn Ser Pro Ser Ser Gly Ser His Ser Arg Ala Trp Glu Tyr Tyr  
 225 230 235 240  
 Ser Arg Glu Lys Pro Lys Gln Glu Gly Glu Ala Lys Val Glu Ala His  
 245 250 255  
 Arg Ala Gly Gln Gly His Pro Cys Arg Asn Ala Glu Ala Glu Glu Gly  
 260 265 270  
 Gly Pro Glu Thr Thr Phe Val Cys Thr Gly Asn Ala Phe Leu Lys Ala  
 275 280 285  
 Trp Val Tyr Arg Pro Gly Glu Asp Thr Glu Glu Glu Asp Asn Ser Asp

|   |     |         |
|---|-----|---------|
| 290   | 295 | 300     |
| Ser Asp Ser Ala Glu Glu Asp Thr Ala Gln Thr Gly Ala Thr Pro His |     |         |
| 305   | 310 | 315 320 |
| Thr Ser Ala Phe Leu Lys Ala Trp Val Tyr Arg Pro Gly Glu Asp Thr |     |         |
| 325   | 330 | 335     |
| Glu Glu Glu Asp Ser Asp Ser Asp Ser Ala Glu Glu Asp Thr Ala Gln |     |         |
| 340   | 345 | 350     |
| Thr Gly Ala Thr Pro His Thr Ser Ala Phe Leu Lys Ala Trp Val Tyr |     |         |
| 355   | 360 | 365     |
| Arg Pro Gly Glu Asp Thr Glu Glu Glu Asn Ser Asp Leu Asp Ser Ala |     |         |
| 370   | 375 | 380     |
| Glu Glu Asp Thr Ala Gln Thr Gly Ala Thr Pro His Thr Ser Ala Phe |     |         |
| 385   | 390 | 395 400 |
| Leu Lys Ala Trp Val Tyr Arg Pro Gly Glu Asp Thr Glu Glu Glu Asn |     |         |
| 405   | 410 | 415     |
| Ser Asp Leu Asp Ser Ala Glu Glu Asp Thr Ala Gln Thr Gly Ala Thr |     |         |
| 420   | 425 | 430     |
| Pro His Thr Ser Pro Phe Leu Lys Ala Trp Val Tyr Arg Pro Gly Glu |     |         |
| 435   | 440 | 445     |
| Asp Thr Glu Asp Asp Thr Glu Glu Glu Glu Asp Ser Glu Asn Val Ala |     |         |
| 450   | 455 | 460     |
| Pro Gly Asp Ser Glu Thr Ala Asp Ser Ser Gln Ser Pro Cys Leu Gln |     |         |
| 465   | 470 | 475 480 |
| Pro Gln Arg Cys Leu Pro Gly Glu Lys Thr Lys Gly Arg Gly Glu Glu |     |         |
| 485   | 490 | 495     |
| Pro Pro Leu Phe Gln Val Ala Phe Tyr Leu Pro Gly Glu Lys Pro Glu |     |         |
| 500   | 505 | 510     |
| Ser Pro Trp Ala Ala Pro Lys Leu Pro Leu Arg Leu Gln Arg Arg Leu |     |         |
| 515   | 520 | 525     |

Arg Leu Phe Lys Ala Pro Thr Arg Asp Gln Asp Pro Glu Ile Pro Leu  
 530 535 540  
 Lys Ala Arg Lys Val His Phe Ala Glu Lys Val Thr Val His Phe Leu  
 545 550 555 560  
 Ala Val Trp Ala Gly Pro Ala Gln Ala Ala Arg Arg Gly Pro Trp Glu  
 565 570 575  
 Gln Phe Ala Arg Asp Arg Ser Arg Phe Ala Arg Arg Ile Ala Gln Ala  
 580 585 590  
 Glu Glu Lys Leu Gly Pro Tyr Leu Thr Pro Asp Ser Arg Ala Arg Ala  
 595 600 605  
 Trp Ala Arg Leu Arg Asn Pro Ser Leu Pro Gln Ser Glu Pro Arg Ser  
 610 615 620  
 Ser Ser Glu Ala Thr Pro Leu Thr Gln Asp Val Thr Thr Pro Ser Pro  
 625 630 635 640  
 Leu Pro Ser Glu Thr Pro Ser Pro Ser Leu Tyr Leu Gly Gly Arg Arg  
 645 650 655  
 Gly

&lt;210&gt; 1063

&lt;211&gt; 2983

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (52).. (2373)

&lt;400&gt; 1063

gaattcgggc gggcgctgcg gccgggcccc gggcgggggg gacgcgggag g atg gag 57  
 Met Glu  
 1  
 caa gtg gag atc ctg agg agg ttc atc cag agg gtc cag gcc atg aag 105  
 Gln Val Glu Ile Leu Arg Arg Phe Ile Gln Arg Val Gln Ala Met Lys  
 5 10 15  
 agt ccg gat cac aat ggg gag gac aac ttc gcc cgg gac ttc atg cga 153  
 Ser Pro Asp His Asn Gly Glu Asp Asn Phe Ala Arg Asp Phe Met Arg  
 20 25 30  
 ttg aga aga ttg tct acc aaa tat aga aca gaa aag att tat ccc aca 201  
 Leu Arg Arg Leu Ser Thr Lys Tyr Arg Thr Glu Lys Ile Tyr Pro Thr  
 35 40 45 50  
 gcc act gga gaa aaa gaa gaa aat gtt aaa aag aac aga tat aag gac 249  
 Ala Thr Gly Glu Lys Glu Glu Asn Val Lys Lys Asn Arg Tyr Lys Asp  
 55 60 65  
 ata ctg cca ttt gat cac agc cga gtt aag ttg act ttg aag act cca 297  
 Ile Leu Pro Phe Asp His Ser Arg Val Lys Leu Thr Leu Lys Thr Pro  
 70 75 80  
 tcc caa gat tca gat tat atc aat gca aat ttt att aag ggt gtg tat 345  
 Ser Gln Asp Ser Asp Tyr Ile Asn Ala Asn Phe Ile Lys Gly Val Tyr  
 85 90 95  
 ggg cca aaa gca tat gtg gca acc caa ggg cct ttc cgg aat aca gtc 393  
 Gly Pro Lys Ala Tyr Val Ala Thr Gln Gly Pro Phe Arg Asn Thr Val  
 100 105 110  
 ata gac ttc tgg agg atg ata tgg gag tat aat gtt gtg atg atc gtg 441  
 Ile Asp Phe Trp Arg Met Ile Trp Glu Tyr Asn Val Val Met Ile Val  
 115 120 125 130  
 atg gcc tgt cga gaa ttt gag atg gga agg aaa aag tgt gag cgc tac 489  
 Met Ala Cys Arg Glu Phe Glu Met Gly Arg Lys Lys Cys Glu Arg Tyr

|   |     |     |     |
|---|-----|-----|-----|
| 135   | 140 | 145 |     |
| tgg cct ttg tat gga gaa gat cct ata aca ttt gca cca ttt aaa att |     |     | 537 |
| Trp Pro Leu Tyr Gly Glu Asp Pro Ile Thr Phe Ala Pro Phe Lys Ile |     |     |     |
| 150   | 155 | 160 |     |
| tct tgt gaa aat gaa caa gca aga acc gac tac ttc atc cga aca ctt |     |     | 585 |
| Ser Cys Glu Asn Glu Gln Ala Arg Thr Asp Tyr Phe Ile Arg Thr Leu |     |     |     |
| 165   | 170 | 175 |     |
| tta ctt gaa ttt caa aat gaa tcc cgt cgg ctc tat cag ttt cat tac |     |     | 633 |
| Leu Leu Glu Phe Gln Asn Glu Ser Arg Arg Leu Tyr Gln Phe His Tyr |     |     |     |
| 180   | 185 | 190 |     |
| gtg aac tgg cca gac cat gat gtt cct tcg tca ttt gat tct att ctg |     |     | 681 |
| Val Asn Trp Pro Asp His Asp Val Pro Ser Ser Phe Asp Ser Ile Leu |     |     |     |
| 195   | 200 | 205 | 210 |
| gac atg ata agc tta atg agg aaa tac caa gaa cat gaa gat gtg cct |     |     | 729 |
| Asp Met Ile Ser Leu Met Arg Lys Tyr Gln Glu His Glu Asp Val Pro |     |     |     |
| 215   | 220 | 225 |     |
| att tgt att cat tgc agt gct ggc tgt gga cga aca ggt gct att tgt |     |     | 777 |
| Ile Cys Ile His Cys Ser Ala Gly Cys Gly Arg Thr Gly Ala Ile Cys |     |     |     |
| 230   | 235 | 240 |     |
| gcc ata gat tac acg tgg aac tta ctg aaa gca ggg aaa att cca gag |     |     | 825 |
| Ala Ile Asp Tyr Thr Trp Asn Leu Leu Lys Ala Gly Lys Ile Pro Glu |     |     |     |
| 245   | 250 | 255 |     |
| gaa ttt aat gta ttt aat tta ata caa gaa atg aga aca cag agg cac |     |     | 873 |
| Glu Phe Asn Val Phe Asn Leu Ile Gln Glu Met Arg Thr Gln Arg His |     |     |     |
| 260   | 265 | 270 |     |
| tcg gca gta caa aca aag gag cag tat gaa ctt gtt cat agg gct att |     |     | 921 |
| Ser Ala Val Gln Thr Lys Glu Gln Tyr Glu Leu Val His Arg Ala Ile |     |     |     |
| 275   | 280 | 285 | 290 |
| gct caa ctg ttt gaa aac agc tac aac tgt atg aaa ttc atg gag cac |     |     | 969 |

|   |      |
|---|------|
| Ala Gln Leu Phe Glu Asn Ser Tyr Asn Cys Met Lys Phe Met Glu His |      |
| 295   | 300  |
| 305   |      |
| aga aga tcc gtg atg gta atg aaa tta cca ctg gaa cta tgg tca gtt | 1017 |
| Arg Arg Ser Val Met Val Met Lys Leu Pro Leu Glu Leu Trp Ser Val |      |
| 310   | 315  |
| 320   |      |
| cca ttg ata gcg aga cga gac ctc tcc gcc aaa gcc gcc gcg gac tcg | 1065 |
| Pro Leu Ile Ala Arg Arg Asp Leu Ser Ala Lys Ala Ala Ala Asp Ser |      |
| 325   | 330  |
| 335   |      |
| aag ttg cct tgt aga agg gga tgc caa gga aga aat act aca gcc acc | 1113 |
| Lys Leu Pro Cys Arg Arg Gly Cys Gln Gly Arg Asn Thr Thr Ala Thr |      |
| 340   | 345  |
| 350   |      |
| aga acc tca ccc ggt gcc acc cat cct gac gcc atc acc tcc ttc agc | 1161 |
| Arg Thr Ser Pro Gly Ala Thr His Pro Asp Ala Ile Thr Ser Phe Ser |      |
| 355   | 360  |
| 365   | 370  |
| ctt ccc aac gtt acc act gtg tgc agg aca gtg aca ggt acc acc caa | 1209 |
| Leu Pro Asn Val Thr Thr Val Cys Arg Thr Val Thr Gly Thr Thr Gln |      |
| 375   | 380  |
| 385   |      |
| agc cag tgc tgc aca tgg cct cac cag agc aac acc cag ccg acc tca | 1257 |
| Ser Gln Cys Cys Thr Trp Pro His Gln Ser Asn Thr Gln Pro Thr Ser |      |
| 390   | 395  |
| 400   |      |
| aca gaa gct atg ata aat cag cgg acc aat ggg gca aaa agt gaa tca | 1305 |
| Thr Glu Ala Met Ile Asn Gln Arg Thr Asn Gly Ala Lys Ser Glu Ser |      |
| 405   | 410  |
| 415   |      |
| gct att gag cac ata gat aag aag tta gag cgc aat tta agt ttt gag | 1353 |
| Ala Ile Glu His Ile Asp Lys Lys Leu Glu Arg Asn Leu Ser Phe Glu |      |
| 420   | 425  |
| 430   |      |
| att aag aaa gtc cct ctc caa gaa ggg ccc aaa agt ttt gat ggg aac | 1401 |
| Ile Lys Lys Val Pro Leu Gln Glu Gly Pro Lys Ser Phe Asp Gly Asn |      |
| 435   | 440  |
| 445   | 450  |



aca ctc ttg aat agg gga cat gcg att aaa att aaa tct gct tca tct 1449  
 Thr Leu Leu Asn Arg Gly His Ala Ile Lys Ile Lys Ser Ala Ser Ser  
 455 460 465  
 tct gta gtt gac aga acc tct aaa cca cag gag tta agt gca ggt gcc 1497  
 Ser Val Val Asp Arg Thr Ser Lys Pro Gln Glu Leu Ser Ala Gly Ala  
 470 475 480  
 cta aag gtt gat gat gta tct cag aat tct tgc gcg gac tgt agt gcg 1545  
 Leu Lys Val Asp Asp Val Ser Gln Asn Ser Cys Ala Asp Cys Ser Ala  
 485 490 495  
 gct cat tca cac aga gct gct gag tcg tca gag gag tcc cag agc aac 1593  
 Ala His Ser His Arg Ala Ala Glu Ser Ser Glu Glu Ser Gln Ser Asn  
 500 505 510  
 tca cac aca cct cca cgg cca gac tgc ttg cct ctc gat aag aaa gga 1641  
 Ser His Thr Pro Pro Arg Pro Asp Cys Leu Pro Leu Asp Lys Lys Gly  
 515 520 525 530  
 cac gta acg tgg tca ctt cat gga cct gaa aat gcc aca cct gta ccc 1689  
 His Val Thr Trp Ser Leu His Gly Pro Glu Asn Ala Thr Pro Val Pro  
 535 540 545  
 gac tca cct gac ggc aaa tcc cca gat aat cat tct cag act ctg aaa 1737  
 Asp Ser Pro Asp Gly Lys Ser Pro Asp Asn His Ser Gln Thr Leu Lys  
 550 555 560  
 acc gtg agt tcc aca ccc aac tcc acc gca gaa gag gaa gcc cac gat 1785  
 Thr Val Ser Ser Thr Pro Asn Ser Thr Ala Glu Glu Glu Ala His Asp  
 565 570 575  
 ctt aca gag cac cac aac agc tcc cct ctg ttg aaa gct ccc ctc agc 1833  
 Leu Thr Glu His His Asn Ser Ser Pro Leu Leu Lys Ala Pro Leu Ser  
 580 585 590  
 ttt acc aac cct ctt cac tct gac gac tgg cac tca gac gga ggg agc 1881  
 Phe Thr Asn Pro Leu His Ser Asp Asp Trp His Ser Asp Gly Gly Ser

|   |      |     |     |  |
|---|------|-----|-----|--|
| 595   | 600  | 605 | 610 |  |
| tct gat ggt gct gtg acc agg aac aaa act agc att tca aca gca agt | 1929 |     |     |  |
| Ser Asp Gly Ala Val Thr Arg Asn Lys Thr Ser Ile Ser Thr Ala Ser |      |     |     |  |
| 615   | 620  | 625 |     |  |
| gcc aca gtg tct cct gcc agt agt gct gag agt gct tgc cat agg aga | 1977 |     |     |  |
| Ala Thr Val Ser Pro Ala Ser Ser Ala Glu Ser Ala Cys His Arg Arg |      |     |     |  |
| 630   | 635  | 640 |     |  |
| gta ttg ccg atg tcc att gcc aga cag gaa gta gca ggc acg ccg cat | 2025 |     |     |  |
| Val Leu Pro Met Ser Ile Ala Arg Gln Glu Val Ala Gly Thr Pro His |      |     |     |  |
| 645   | 650  | 655 |     |  |
| tca ggt gct gag aaa gat gct gat gtt agt gag gag tcg cct cct cct | 2073 |     |     |  |
| Ser Gly Ala Glu Lys Asp Ala Asp Val Ser Glu Glu Ser Pro Pro Pro |      |     |     |  |
| 660   | 665  | 670 |     |  |
| tta cct gaa cga act cct gag tct ttt gta tta gca gat atg cct gta | 2121 |     |     |  |
| Leu Pro Glu Arg Thr Pro Glu Ser Phe Val Leu Ala Asp Met Pro Val |      |     |     |  |
| 675   | 680  | 685 | 690 |  |
| aga cct gag tgg cat gaa ctt cca aat cag gag tgg tct gaa caa agg | 2169 |     |     |  |
| Arg Pro Glu Trp His Glu Leu Pro Asn Gln Glu Trp Ser Glu Gln Arg |      |     |     |  |
| 695   | 700  | 705 |     |  |
| gaa tct gaa ggc ttg aca acc tct gga aat gaa aaa cat gat gca ggg | 2217 |     |     |  |
| Glu Ser Glu Gly Leu Thr Thr Ser Gly Asn Glu Lys His Asp Ala Gly |      |     |     |  |
| 710   | 715  | 720 |     |  |
| ggc atc cac aca gag gct tct gca gac tct cca cct gct ttc agt gac | 2265 |     |     |  |
| Gly Ile His Thr Glu Ala Ser Ala Asp Ser Pro Pro Ala Phe Ser Asp |      |     |     |  |
| 725   | 730  | 735 |     |  |
| aag aaa gat caa ata aca aaa agt cca gca gaa gtc aca gat att ggt | 2313 |     |     |  |
| Lys Lys Asp Gln Ile Thr Lys Ser Pro Ala Glu Val Thr Asp Ile Gly |      |     |     |  |
| 740   | 745  | 750 |     |  |
| ttt ggt aat cgc tgt gga aaa cct aaa gga cca aga gag cca cct tca | 2361 |     |     |  |

Phe Gly Asn Arg Cys Gly Lys Pro Lys Gly Pro Arg Glu Pro Pro Ser  
 755                      760                      765                      770  
 gaa tgg aca tga tgcagggagt gaaaggacac ttcacattat actggaacac 2413  
 Glu Trp Thr  
 tcgaagtcca ctgaaagcca ggcttatagt attccatctt taatgtggga gctagtagca 2473  
 gtaigattgt taccitagt tgagttcttt acctgcctcc ttatactaac aggcaagtag 2533  
 gtatataatt tgataaagtc cctaaatatt attaacagaa gatgtaagaa ttctgcatgg 2593  
 tctaagtctt tgtgtatctt acttgtaaatt tatttgcctt gaagtttttag aaaacagttt 2653  
 ctgaatttta aacttgctgg attcatgcag ccagcattgc aggttatcag agatcaaaga 2713  
 ttgtaataat aatacatitt gtaaattgta agcaaaaagt tatttttata ctatatactg 2773  
 tctaattggt catcctaatt gttcttggtt tcatctagtc atggagattc agtaagtgcc 2833  
 ttggaagaat attgaattct cttagctcgt gtgtgttact ttaaaatttg aattcaactg 2893  
 gggttagaag actatcagaa tataatgtatg tticaggata ttigacctgc cattaaaaaa 2953  
 acaaacagtt ttacactgct aaaaaaaaaa 2983

<210> 1064

<211> 773

<212> PRT

<213> Mus musculus

<400> 1064

Met Glu Gln Val Glu Ile Leu Arg Arg Phe Ile Gln Arg Val Gln Ala  
 1                      5                      10                      15  
 Met Lys Ser Pro Asp His Asn Gly Glu Asp Asn Phe Ala Arg Asp Phe  
 20                      25                      30  
 Met Arg Leu Arg Arg Leu Ser Thr Lys Tyr Arg Thr Glu Lys Ile Tyr  
 35                      40                      45  
 Pro Thr Ala Thr Gly Glu Lys Glu Glu Asn Val Lys Lys Asn Arg Tyr

|   |     |         |
|---|-----|---------|
| 50  | 55  | 60      |
| Lys Asp Ile Leu Pro Phe Asp His Ser Arg Val Lys Leu Thr Leu Lys |     |         |
| 65  | 70  | 75 80   |
| Thr Pro Ser Gln Asp Ser Asp Tyr Ile Asn Ala Asn Phe Ile Lys Gly |     |         |
| 85  | 90  | 95      |
| Val Tyr Gly Pro Lys Ala Tyr Val Ala Thr Gln Gly Pro Phe Arg Asn |     |         |
| 100   | 105 | 110     |
| Thr Val Ile Asp Phe Trp Arg Met Ile Trp Glu Tyr Asn Val Val Met |     |         |
| 115   | 120 | 125     |
| Ile Val Met Ala Cys Arg Glu Phe Glu Met Gly Arg Lys Lys Cys Glu |     |         |
| 130   | 135 | 140     |
| Arg Tyr Trp Pro Leu Tyr Gly Glu Asp Pro Ile Thr Phe Ala Pro Phe |     |         |
| 145   | 150 | 155 160 |
| Lys Ile Ser Cys Glu Asn Glu Gln Ala Arg Thr Asp Tyr Phe Ile Arg |     |         |
| 165   | 170 | 175     |
| Thr Leu Leu Leu Glu Phe Gln Asn Glu Ser Arg Arg Leu Tyr Gln Phe |     |         |
| 180   | 185 | 190     |
| His Tyr Val Asn Trp Pro Asp His Asp Val Pro Ser Ser Phe Asp Ser |     |         |
| 195   | 200 | 205     |
| Ile Leu Asp Met Ile Ser Leu Met Arg Lys Tyr Gln Glu His Glu Asp |     |         |
| 210   | 215 | 220     |
| Val Pro Ile Cys Ile His Cys Ser Ala Gly Cys Gly Arg Thr Gly Ala |     |         |
| 225   | 230 | 235 240 |
| Ile Cys Ala Ile Asp Tyr Thr Trp Asn Leu Leu Lys Ala Gly Lys Ile |     |         |
| 245   | 250 | 255     |
| Pro Glu Glu Phe Asn Val Phe Asn Leu Ile Gln Glu Met Arg Thr Gln |     |         |
| 260   | 265 | 270     |
| Arg His Ser Ala Val Gln Thr Lys Glu Gln Tyr Glu Leu Val His Arg |     |         |
| 275   | 280 | 285     |

Ala Ile Ala Gln Leu Phe Glu Asn Ser Tyr Asn Cys Met Lys Phe Met  
 290 295 300  
 Glu His Arg Arg Ser Val Met Val Met Lys Leu Pro Leu Glu Leu Trp  
 305 310 315 320  
 Ser Val Pro Leu Ile Ala Arg Arg Asp Leu Ser Ala Lys Ala Ala Ala  
 325 330 335  
 Asp Ser Lys Leu Pro Cys Arg Arg Gly Cys Gln Gly Arg Asn Thr Thr  
 340 345 350  
 Ala Thr Arg Thr Ser Pro Gly Ala Thr His Pro Asp Ala Ile Thr Ser  
 355 360 365  
 Phe Ser Leu Pro Asn Val Thr Thr Val Cys Arg Thr Val Thr Gly Thr  
 370 375 380  
 Thr Gln Ser Gln Cys Cys Thr Trp Pro His Gln Ser Asn Thr Gln Pro  
 385 390 395 400  
 Thr Ser Thr Glu Ala Met Ile Asn Gln Arg Thr Asn Gly Ala Lys Ser  
 405 410 415  
 Glu Ser Ala Ile Glu His Ile Asp Lys Lys Leu Glu Arg Asn Leu Ser  
 420 425 430  
 Phe Glu Ile Lys Lys Val Pro Leu Gln Glu Gly Pro Lys Ser Phe Asp  
 435 440 445  
 Gly Asn Thr Leu Leu Asn Arg Gly His Ala Ile Lys Ile Lys Ser Ala  
 450 455 460  
 Ser Ser Ser Val Val Asp Arg Thr Ser Lys Pro Gln Glu Leu Ser Ala  
 465 470 475 480  
 Gly Ala Leu Lys Val Asp Asp Val Ser Gln Asn Ser Cys Ala Asp Cys  
 485 490 495  
 Ser Ala Ala His Ser His Arg Ala Ala Glu Ser Ser Glu Glu Ser Gln  
 500 505 510  
 Ser Asn Ser His Thr Pro Pro Arg Pro Asp Cys Leu Pro Leu Asp Lys

|   |     |     |
|---|-----|-----|
| 515   | 520 | 525 |
| Lys Gly His Val Thr Trp Ser Leu His Gly Pro Glu Asn Ala Thr Pro |     |     |
| 530   | 535 | 540 |
| Val Pro Asp Ser Pro Asp Gly Lys Ser Pro Asp Asn His Ser Gln Thr |     |     |
| 545   | 550 | 555 |
| Leu Lys Thr Val Ser Ser Thr Pro Asn Ser Thr Ala Glu Glu Glu Ala |     | 560 |
| 565   | 570 | 575 |
| His Asp Leu Thr Glu His His Asn Ser Ser Pro Leu Leu Lys Ala Pro |     |     |
| 580   | 585 | 590 |
| Leu Ser Phe Thr Asn Pro Leu His Ser Asp Asp Trp His Ser Asp Gly |     |     |
| 595   | 600 | 605 |
| Gly Ser Ser Asp Gly Ala Val Thr Arg Asn Lys Thr Ser Ile Ser Thr |     |     |
| 610   | 615 | 620 |
| Ala Ser Ala Thr Val Ser Pro Ala Ser Ser Ala Glu Ser Ala Cys His |     |     |
| 625   | 630 | 635 |
| Arg Arg Val Leu Pro Met Ser Ile Ala Arg Gln Glu Val Ala Gly Thr |     | 640 |
| 645   | 650 | 655 |
| Pro His Ser Gly Ala Glu Lys Asp Ala Asp Val Ser Glu Glu Ser Pro |     |     |
| 660   | 665 | 670 |
| Pro Pro Leu Pro Glu Arg Thr Pro Glu Ser Phe Val Leu Ala Asp Met |     |     |
| 675   | 680 | 685 |
| Pro Val Arg Pro Glu Trp His Glu Leu Pro Asn Gln Glu Trp Ser Glu |     |     |
| 690   | 695 | 700 |
| Gln Arg Glu Ser Glu Gly Leu Thr Thr Ser Gly Asn Glu Lys His Asp |     |     |
| 705   | 710 | 715 |
| Ala Gly Gly Ile His Thr Glu Ala Ser Ala Asp Ser Pro Pro Ala Phe |     | 720 |
| 725   | 730 | 735 |
| Ser Asp Lys Lys Asp Gln Ile Thr Lys Ser Pro Ala Glu Val Thr Asp |     |     |
| 740   | 745 | 750 |

Ile Gly Phe Gly Asn Arg Cys Gly Lys Pro Lys Gly Pro Arg Glu Pro

755

760

765

Pro Ser Glu Trp Thr

770

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<211> 244

<212> DNA

<213> Mus musculus

<400> 1065

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gcctatccct agtgtcctca tccctatctc ctgagggtac attactcgt ggaggcatcc 180
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gcgc 244
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<211> 330

<212> DNA

<213> Mus musculus

<400> 1066

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tgccctatgg ccccttccct gggccctatt ggtccagaag gagcctctgt gctgggtgca 180
gaacatgggg cactcatggg aatcacccca ctcccttctg ggcagcactg gtgcctctgc 240
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<210> 1067

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Synthetic DNA

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20